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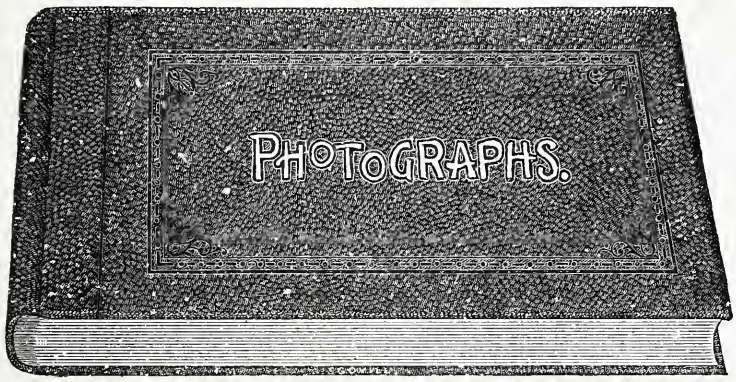
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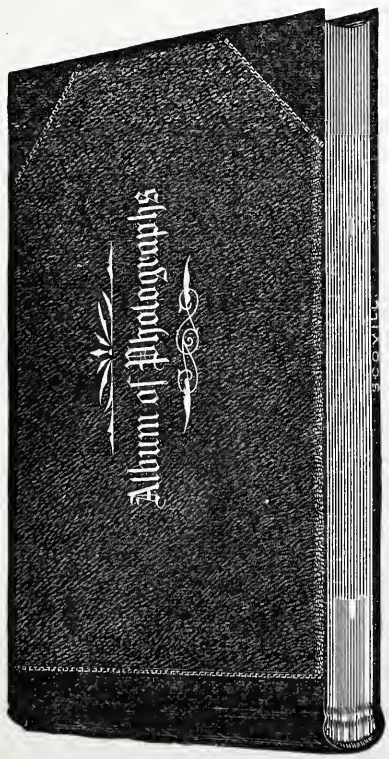
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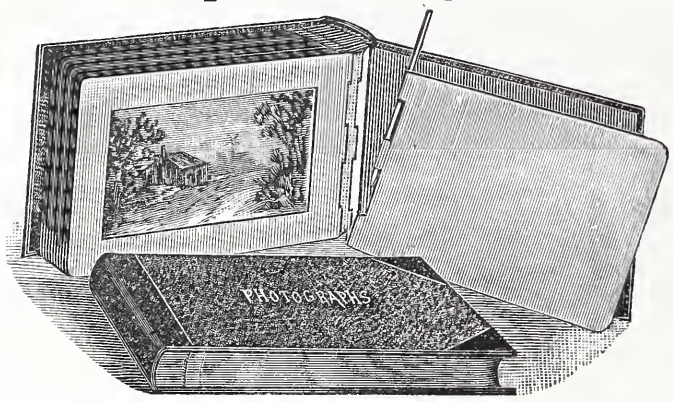
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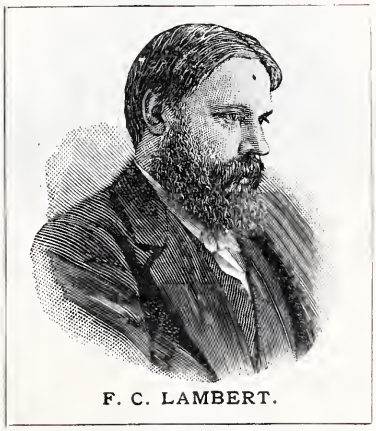
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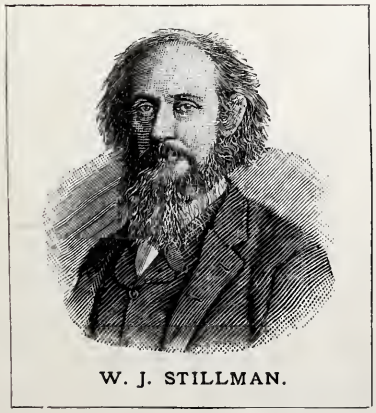
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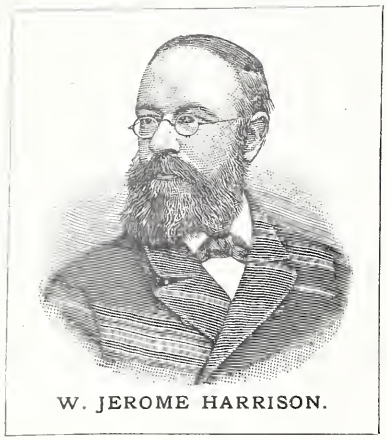


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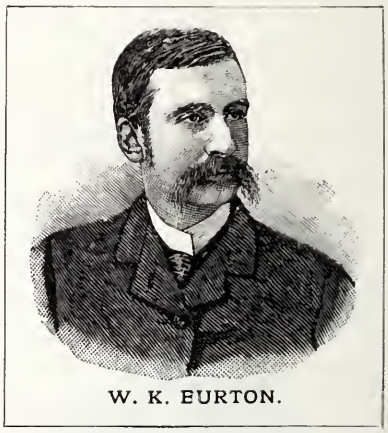
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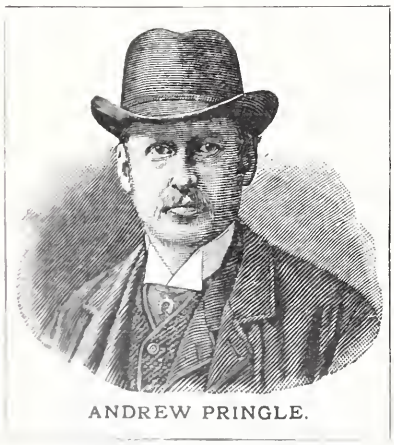
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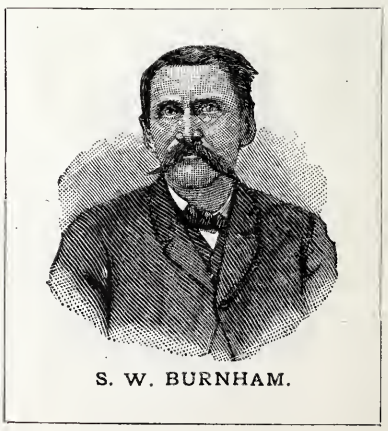
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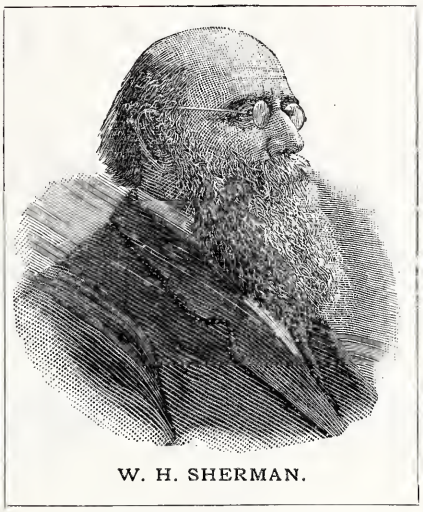
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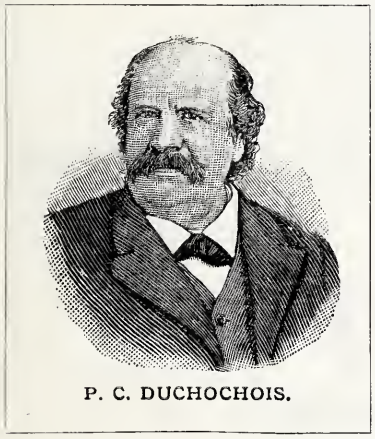
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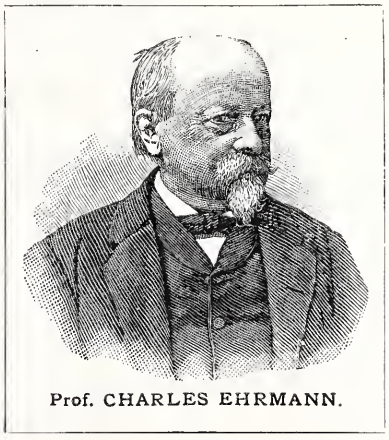


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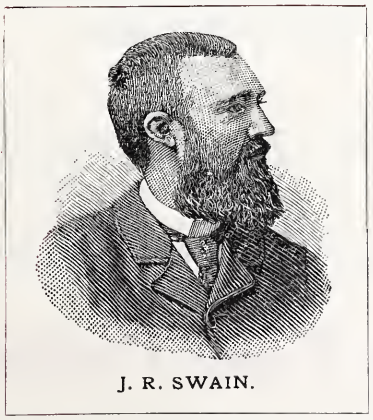


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GLADSTONE.

THE PHOTOGRAPHIC TIMES.

VOL. XXII. FRIDAY, JANUARY 1, 1892. NO. 537.

GLADSTONE.

WE present our readers this week with an excellent portrait of England's "Grand Old Man," "the greatest living statesman," William Ewart Gladstone. The phototype is by Gutekunst, from a recent photograph. The photographer's name is not known, but the portrait is no less excellent for that reason. In its simple yet effective lighting, the subordination of everything to the strong features of the face, as well as in its dignified pose, this portrait leaves little to be described. It may be taken as a model by our younger readers.

EDITORIAL NOTES.

THOSE of our readers who are interested in orthochromatic plates will feel under a debt to Messrs. F. Mylins and F. Foerster, for publishing, though not for photographic objects, a mode of preparing erythrosine in a pure state. In experimental work with coal-tar colors much depends upon the power of using pure materials; in fact instances have arisen where peculiar effects obtained by using certain dyes have been dependent entirely upon the adventitious aid of a particular impurity, and not to the substance itself, which gave its name to the dye. When the brilliantly fluorescent dye fluoresceine is treated with the haloids in certain special modes, and an alkali salt made from the product, the celebrated eosines are produced. Speaking in a general way, it may be said that with bromine we have yellow-shade eosine, with chlorine we have aureosine, and with bromine blue-shade eosine, or erythrosine, which, as obtained in commerce, is a soluble brick-red powder. To purify it from certain accompanying products not necessary here to describe, these chemists dissolved the commercial product in aqueous ether, filtered the liquid, and then added dilute soda-lye, which removed the erythrosine from the ether. They then added a much stronger soda-lye, which caused the salt to precipitate. This was separated by filtration, then washed with spirit, and finally recrystallized from hot alcohol. Upon cooling the solution deposits well-shaped crystals of pure erythrosine—tetraiod fluoresceine. The solution in alkali of this chemical is much more yellow in tone than the crude commercial article.

THE oxides of the rare metals zirconium and lanthanum have been shown to possess a high value as a substitute for lime (calcium oxide) in the oxyhydrogen-light for lantern projection. The great obstacle to their employment has been their high cost in comparison with lime, but, happily, this ought no longer to be the case. At a recent meeting of the Franklin Society, Mr. Waldron Shapleigh, of the Welsbach Incandescent Gas Light Co., of Gloucester, N. J., read a paper, in which he stated that zirconium, lanthanum and cerium should no longer be classed among the rare earths, as hundreds of tons of ores from which they are obtained have been located in North Carolina, and there seems no end to the deposits of monazite sand—one of the richest ores, and containing most of the "rare earths."

AN engraving from an exceedingly interesting lightning photograph was exhibited in *La Nature* a week or two ago. Exposed for ten minutes during a severe storm at the mouth of the Gironde, the plate exhibited dozens of lines ramifying like roots in a section of soil closely planted with herbage. Such negatives are of great value to meteorologists, and we should recommend those of our readers who have the opportunity to take their camera to the window some stormy night and expose a few plates, for a minute or two each, during the passage of a great thunder-storm; their negatives compared would help to unravel some knotty problems in regard to the electric discharge. Already, for example, negatives have been exhibited which entirely disprove the positive assertions of a great number

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of meteorologists, that zig-zag lightning is rarely ramified; for the ramifications in many exhibited negatives are innumerable, though, perhaps, but little visible to the naked eye.

TWO HOURS WITH A BEGINNER IN PHOTOGRAPHY.

As it is generally the case that amateurs enter the practice of photography with the knowledge acquired from reading one of the various good books of which there are so many in the market, it happens notwithstanding that he obtains a very vague idea of over-exposure, under exposure, over-development and under-development, and the attempts to clear up the mists generally result in the amateurs becoming more confused than ever. It occurred to me, that if I were to give a demonstration of such perplexities, a beginner would more quickly and thoroughly learn the absolutely necessary details to be carefully followed to obtain satisfactory results.

After giving a few instructions on the reflection of light and its effects, I exposed and afterwards developed the following series of 5 Carbutt B. plates.

No. 1 plate was exposed 15 seconds in October at 4 P.M. The sun was shining, but not brilliantly. I used the open-stop of a Beck lens. This was to be the over-exposure.

No. 2 plate was exposed 3 seconds with stop $\frac{f}{16}$. This was to be properly timed.

No. 3 plate was exposed 6 seconds with $\frac{f}{32}$. This was also to be properly exposed, and thus I would demonstrate the statement that a plate requires double exposure where the stop used is half that of the previous exposure.

No. 4 plate was exposed 4 seconds, and opening of $\frac{f}{5}$ stop. This was to show under-exposure.

No. 5 plate was exposed 3 seconds with $\frac{f}{16}$ stop. This was properly exposed, and the duplicate of No. 2. It was thus exposed for the purpose of development in comparison later with No. 2 plate.

Taking the student into the dark-room, and having carefully numbered each plate, with its record of stop and exposure, registered in the note book, I poured fresh strong developer into two different graduates.

No. 1 plate was developed with the developer in No. 1 graduate and the result was—image appeared quickly and showed a badly over-exposed plate.

No 2 plate was developed in the same developer and image appeared slowly and showed good detail in the shadows, and proved a very good negative.

No. 3 plate was developed in the same developer as No. 2, and was the same, except that the whole plate was finer in every particular. In fact this was the typical negative of proper exposure and development.

No. 4 plate was developed with the fresh developer in the second graduate, and, as it was under-exposed, it was forced up by the fresh developer, and produced a very thin negative, lacking detail and entire want of density.

No. 5 plate was developed half as long as No. 2, and produced a technically under-developed plate, thin and lacking detail in appearance. The same as No. 4, with the exception that it lacked body.

This ended the production of the negatives, and while many changes could be made on the above series, yet my experience leads me to believe that the less complicated the demonstration the more satisfactory is it to the beginner, as he himself can follow out the series *ad libitum*.

Silver prints of the above negatives were made and by reference to them the amateur understood why it is impossible to get good prints from bad negatives. It is generally assumed by the beginner, that if there is any image whatever on the negative, the printer ought to be able to get a fine brilliant print with a clear sky and clean-cut contrasts.

This demonstration occupied two hours time, and by careful attention, and afterwards by reference to the notes taken, the beginner made two excellent negatives so far as chemical work was concerned, without any assistance, and he knew that he had under-exposed the first, and gave the proper reason for it, the second negative being a very fine one in every particular.

If this or a like method were carefully pursued, there is no doubt but that the amateur would more quickly gain the requisite experience, and undoubtedly there would be a greater number of devotees in the art and practice of photography.

Morris Earle.

MY METHOD OF DEVELOPMENT.

THE PHOTOGRAPHIC TIMES of October 30 gives a description of a method of development employed in the production of the photogravure illustration of that number, "By the Sea."

From the number of inquiries I have received, I judge that it may be of interest to go somewhat more fully into the details of the method I use.

I must confess that I have no specific formula that I follow. The broad idea is that there should be two trays of developer, one containing practically the reducing agent, whether it is pyro, eiko-

nogen, or hydrochinon—and the other the alkali, whether soda, ammonia, or potash. The formula that I prefer stands about as follows:

EIKONOGEN.

Eikonogen	½ ounce
Soda sulphite	2 ounces
Water	20 ounces

ALKALI.

Potash carbonate	1 ounce
Water	20 ounces

When required for use, a sufficient quantity of the *eikonogen* solution is poured into one tray, and about the same quantity of *alkali* solution into another tray. A small quantity of the *eikonogen* solution is added to the tray containing the *alkali*, and a small quantity of the *alkali* solution is added to the tray containing the *eikonogen*. If there are 10 ounces of solution in each tray, a quarter of an ounce of the opposite solution is sufficient to add.

The plate for development is immersed in the *eikonogen* tray. If the exposure has been right, there are soon traces of the highest lights. The plate is then to be transferred to the *alkali* tray. The high lights will, of course, first gain density, but they will not gain too much density, because the eikonogen in the high lights is soon exhausted. Meantime the *alkali* is reducing the eikonogen in the shadows, and will go on developing the details in the shadows as long as there is eikonogen left in those parts of the film. A little consideration will show that by a prolonged immersion in the *alkali* tray, almost any amount of detail may be obtained in the shadows without an undue opacity in the high lights—but of course a sufficient exposure in the shadows is assumed. By the first or previous immersion in the *eikonogen* solution, it is almost impossible to fog a plate.

I find a great many advantages in this method of development, which I have now used steadily for three or four years, both with pyro and eikonogen. By alternating between the two solutions almost any effect may be obtained. If after full detail is obtained in the *alkali*, there should seem to be a want of "sparkle," a slight immersion in the *eikonogen* will produce it.

In case of under-exposure, if the *alkali* fails to drag out detail in the shadows, a short immersion in the *eikonogen* and a long immersion in the *alkali*, repeated, if need be, three or four times, will develop it, if it is there.

In case of over-exposure there is no need to use the *alkali* at all, the *eikonogen* solution with its slight addition of alkali alone is used, and thus many an otherwise hopelessly over-exposed plate is saved. Theoretically, there is no object in adding the small quantity of each solution to the larger quantity of its opposite, when commencing work, but practically it is of value, as it enables one to guage the exposure and adjust the development accordingly. If there were no alkali in the eikonogen, there would be no development, and therefore no signs of an image, till immersion in the alkali. With the slight trace of alkali in the eikonogen, there will be a slight trace of an image, and the subsequent development should be adjusted to the manner in which it appears.

I never use bromide—there is no need for it. But with eikonogen, *temperature* is, I think, very important. The room should be about 65 degrees to 70 degrees, and the solutions to correspond I use nothing but ordinary tap water for mixing the developing solutions, but I attach a good deal of importance to *clean developing trays*. The plates are immersed in the developer without washing, nor is it necessary to wash them (when using eikonogen) before fixing. So that the first time washing is resorted to, is after fixing. It seems to me that nothing is better than plain hypo dissolved in water, for fixing. The use of alum has to my mind the objection that it closes the pores of the gelatine and thus renders the subsequent elimination of the hypo much more difficult.

Development on the lines I have indicated is simple, and is so easily controlled and varied that it has become to me a source of great pleasure. I use this method with all kinds of plates—quick and slow, and all kinds of subjects—instantaneous, flash lights, time exposures, interiors, indeed on every negative I make.

Ernest Edwards.

THE MADDOX FUND.—An international committee for the promotion of this worthy cause has been formed in Southampton, England, of the following gentlemen: James Lemon, Esq., Mayor of Southampton; Col. Sir Charles W. Wilson, K.C.B., F.R.S., R.E., Director of the Ordnance Survey, Southampton; Major-General I. Innis-Gibbs; Captain Robert Evans, R.N. Charles J. Sharp is the honorary secretary of the committee, and the solicitor, and he will shortly have circulars ready for use in this country.

Dr. Raphael Kopp, of Muenster, Switzerland, whose many successful experiments in photographing natural colors have raised him to a high position in the art-science, died, after long illness, at the age of 30 years.

THE LOWEST ROUND OF THE LADDER.

AT no time within the memory of man have photographic portraits of less artistic merit been produced than at the present, notwithstanding that every requisite for the easiest production of perfect work is in the hands of every one who uses a camera, and notwithstanding all the sermons on "Art in Photography," which have been preached at him, lo, these many years. Some of the most worthless stuff ever issued still finds its way out of studios of repute, where it ought rather to have been buried forever out of sight.

The abuse of retouching is prevalent to an alarming extent. It has all the appearance of an incurable disease which has become epidemic. In former days, when our friends passed to the unseen world we had something reliable wherewith to recall their features to memory; now nothing is more common than the complaint that there is no satisfactory likeness in existence of the dear one who has ceased to live. If a crayon or painted portrait is wanted, what an anxious search is made to find something in an old tintype or old photograph, that will serve to suggest to the artist the characteristic lineaments which have been ruthlessly excluded from the smoothed-up productions of later years.

But by what mental process will the people of the next generation be able to form a correct idea of how most of those who have died during the last ten or twenty years looked when living? The worst of it will be that every one will know it to be impossible.

There was the homely, honest face of the kitchen girl, transformed by the trick of the retoucher into such a thing of beauty as would surely cure the coachman of any abductive design upon the heiress of the mansion, if only it were not a delusion. Here the dry, wrinkled, *crow-feeted* face of old Hunks was made to appear that of a "fat and greasy citizen," the hard lines of greed suppressed and the heartless leer of selfishness changed into a beneficent smile. Farmer Haywood that was, judging from present appearances, must have arisen to some high place in the councils of state. Here the hollow-cheeked maiden of conjectural years became again fair, plump, and under twenty. Here the intellectual face, refined, spiritual—not young nor handsome, but beautiful—every depression and every line a stamp of thoughtfulness, is rendered gross and common by the brainless graphite.

Who would have the bark of an oak tree retouched, or the face of an old mastiff made to look like a puppy? This infinite masquerade of shams belongs exclusively to the human family.

To-day I saw the negative of a rugged-faced old man, which had been plumbagoed until there wasn't a wrinkle or hollow left to tell the tale of the vanished years. As there is no fool like an old fool, so there is no way of making an old man look more like one than by putting a boy's face between an octogenarian nose and a grizzly occiput. If I were old I would suffer no such indignity.

The fact is, the print from a negative so tampered with does not represent the man as he now is, as he ever was, or as he ever will be. It does not represent the real externality after the manner of the pre-Raphaelites; neither does it represent it idealized, or as it ought to be. In effect it stretches a false skin over the wrinkles, giving the face the appearance of inflation, an effect irreverently called "bladder-face."

We might reasonably expect that a child's face should be spared the humiliation of this kind of tinkering. But as the average retoucher has no knowledge of what he ought to let alone, he (or she) "goes for" everything that his pencil can alter, and this is a very large part of what he has to know to qualify him, with the help of a little practice, for the responsibilities of his high calling. I was shown, a few evenings since, a photograph of a bright four-year-old boy taken in some large city, and asked how it would answer to make a crayon portrait from. There were the fine large eyes; at a proper distance below were the "curves of the sweet mouth" (what was left of them); then there were the waving locks of silken hair; thank God, so much had escaped the desecration of the retoucher's lead! All the face beside was an unmeaning, unliving blank. Not a ripple, not a dimple, not a bit of texture any more than on the outside of a teacup. Nature's fairest handiwork "on the human face divine" is bungling; hence the gospel of retouching; hence the name of this functionary. He *re*-touches.

But the utmost limit of badness in such a picture is not reached through the efforts of the retoucher alone. Much, very much may be done by way of helping to achieve this interesting result, before the negative reaches his hands. A well-lighted subject and well-developed plate can hardly give a picture wholly bad. Although retouched to death something may yet be said in its praise. A corpse is often beautiful.

I wish I had the ability to adequately describe some of the recent so-called likenesses that I have seen. At present I will try but one: In order to arrive at a fair understanding of the subject, let us

first examine the back or reverse side of the picture. It is a cabinet mount, and we observe, first, a painter's palette, the thumb-hole of which is filled with brushes On this, we read in bold type the names of the proprietors, "PUMMIS & STONE, REMBRANDT STUDIOS, No. —— —— AVENUE," —— (*name of city*), —— (*State*). "*Branches in all the principal cities of the Union.*"

The remaining space on this side is occupied with cuts of the numerous medals awarded them in as many different parts of the world. After examining all these attentively, always bearing in mind that the palette and brushes imply that these gentlemen who assume them as their escutcheon are not mechanics, but artists, we are in a suitable frame of mind to contemplate the work of art on the other side. Turning it over, we find apparently the portrait of a young man, but who may be anywhere from seventeen to forty-seven. Of course the head and body face in different directions, not with the easy, spontaneous action which strikes the observer as perfectly natural, but which on the contrary appears forced, strained and uncomfortable, and for the meaning of which one looks in vain.

The face was lighted after the following scheme: Placing the sitter and twisting the head so that only one side of the face receives any direct light, excepting just enough glancing obliquely across the cheek-bone to bring this feature into undue prominence, the camera was so placed that all the shadow side, and as much of the other as possible without disclosing the ear, were included in the field of view. Then the development of the image was conducted in such a manner that the printer was compelled to overprint the shadow side in order to bring out the details of the light side; or sacrifice the latter to save the former; or else as a last resort to compromise the matter by printing both wrong. But before reaching the hands of the printer it receives the kind attentions of the retoucher, who proceeds to remove all distinctions between the human cuticle and the pellicle of a blown-up toy balloon.

At length the skillful efforts of this confederacy of talent are brought to a close by mounting and burnishing the brilliant product on the blank side of the above-described card, whereby the only valuable change effected is to render it more blank than before.

But then, this is only a sample of what is called "*highly finished work*," and accepted as such by a discerning public. As long as it continues in fashion the supply will not be wanting.

W. H. Sherman.

AZENWEEL.

A PHOTOGRAPHIC GHOST STORY.

IT was a warm day of early summer in the South. Not a breath of air stired the leaves of the tall poplar trees with which the cabin was surrounded, and the young morning-glory vines around the door, that had started out so bravely to climb to the top of the strings set for them, drooped and hung their heads as if discouraged with trying to grow in such warm weather, and even the catbirds that had kept up a constant chatter all the morning, were now still, and might have been found nodding in a quiet siesta up among the branches.

The cabin was the home of Uncle Henry and Aunt Hetty, former slaves, and always faithful servants of the aristocratic Ashley family, who since revolutionary times have made their home in the fine old mansion that stands back on the hill some distance from Uncle Henry's cabin.

Through the open door and windows, on that June afternoon, came the familiar clatter that told that Aunt Hetty was "washin' de dishes" after the noonday meal She prided herself on her dexterity with the dishcloth, and the rapidity with which the cups and plates passed through her hands was only equalled by the way in which Kitty Jo, her little ten year old daughter, wiped them dry and set them away in shining rows on the cupboard shelves.

But there was another occupant of the room. Seated on a bench in the further corner and idly watching his industrious female relatives, was Azenwell, Uncle Henry's son and heir, and the hero of our story. The reader must not imagine that he was called after some wild African ancestor, but the name is a corruption of Hayes and Wheeler, who were the presidential candidates of his father's choice at the time the boy was born.

"No, you can't go ober to Berrytown," Aunt Hetty began, as she dropped a saucer into the water with a splash to emphasize her remarks. "I know what you want. You want to take dat photografin' thing ober to hab de fetchen-out stuffs put on ter it. You good fer nothin' cullid chile, you aughter be ashamed o' yoself ater what you did last night. What you think Fessor Bligions think o' you? What all de good people think o' you? What de *Lord* think o' you? Say! I declar, I wish Marsa Harry keep his photografin' things hisself. Photografin' good enough for white gemlins, but aint anything fer niggas what don't know enough not to put dem off in church. Yer par told yo' to hoe dat corn dis afternoon, an' if you don't"—

and Aunt Hetty ended with an ominous shake of the head.

"He, he," tittered Kitty Jo, "didn't Aunt Sallie jump when the light go off? Wonder if de ole 'tective camera take dat ar jump."

"Hush, chile, you don't unerstand de wusness ob de situation." And Aunt Hetty began to enlarge on the sins of which her son had been guilty.

Meanwhile, away down the road a figure is toiling through the heat and dust; a tall, slender negro man, dressed in a badly-fitting suit of rusty black, with high, white collar, and clerical necktie. The leathery skin of his cheeks is doted here and there with scrubby knots of beard, and his eyes are protected by huge silver rimmed spectacles; his bushy hair grows in unshorn profusion below the rim of his dilapidated silk hat, and a big, green umbrella protects him from the sun, and completes the costume of Professor Shadrac Bligions, travelling evangelist and spiritualistic medium. He is on his way to the Ashley plantation, and, as it will be some time before he arrives at his destination, we will take the opportunity for a little retrospection.

Old General Ashley died some ten years before our story opens, and Uncle Henry had been in sole charge of the place ever since. Old Mrs. Ashley usually spent the summer with her married daughter in the North, but in the winter would return to the old homestead, generally accompanied by her daughter and grandson Harry, a boy somewhat older than Azenweel. When on his last visit, Harry had brought with him a detective camera, in which Azenweel had taken a great interest Harry had never been a very enthusiastic amateur himself, and when he went home he had, with his mother's permission, presented Azenweel with camera and complete outfit, leaving instructions with a local photographer to "do the rest" for him at his expense. Among other things there was a quantity of flash powder, and it was for discharging some of this the night before in the church, in order to photograph the worshippers in the revival service being conducted by Professor Bligions, that Azenweel had got himself into deep disgrace.

Aunt Hetty was finishing her discourse with a perioration on the worthlessness of "culled" children general, and her own boy in particular, when Kitty Jo, who had found a cool place on the door step, came running in, her round eyes dilated with excitement.

"Oh, Azenweel, here comes 'Fessor Bligions, guess he come ter take away de 'tective camera!"

A glance through the window showed Azenweel that the enemy was already as the gate. Seizing the camera from under the bench, he darted up the narrow stairs closely followed by Kitty Jo.

After wrapping the camera in an old quilt and depositing it in a dark corner, both youngsters took up a position at the head of the stairs to await developments.

Words of greeting passed between their mother and the visitor, and then the creaking of the big rocking-chair indicated that he was accepting her invitation to be seated. After a slight pause, their mother's voice was heard imparting the startling information that it was a warm day. This was followed by a polite request from the visitor for a drink of water. Then the click of the latch on the best cupboard told to Kitty Jo as plainly as if she had seen the action that her mother was getting out the majolica pitcher and the nice yellow glass tumbler for the entertainment of the honored guest. The creak of the windlass told that water, cool and fresh, was being drawn from the well in the yard, and even the grunt of satisfaction of the good man as he drank it was heard and noted by the sharp ears at the landing above. "Sista Ashley," began the visitor when somewhat refreshed, "I come here on important business, will you be so kind as to call your husband." The two little hearts up stairs stood still with suspense. "Yes, sah, certainly, sah," and their mother's loud and far-reaching shout went forth on the still air—"Hen-ry, oh, Hen-ry!" and their father's answering hail was heard from away down in the melon patch. Soon renewed greetings told that their father had arrived, and the conversation that followed was listened to in breathless silence by the children overhead. To their surprise the flash-light matter was not the subject of the professor's talk, but it was something different, the like of which they had never before heard.

"My dear brudder and sista," he began, "you are no doubt aware dat I am sometimes favored by those who have gone before with conversations and communications such as are not permitted to de common run o' humanity to hear. I hab such a message for you ter-day. Las' night when I were in de trance, de spirit of a tall, fine-looking gentleman come along and say, 'I want you ter take a message to Henry and Hester Ashley,' an' I say, 'What yo' name?' an' he say, 'Genrul Ashley, der ole marsa,' an' I say, 'Speak, an' I will listen,' an' he say, 'Go tell my faithful servants dat in de spirit world I am in sore distress, an' can know no rest for de want of money, an' dat if I don' get a hundred dollars at once I must wander around as a ghost forever.

"'Tell Henry,' sez he, 'ter take de money an' put it behind my big portrait dat hangs in de parlor up at de big house an I will come an' take it away from dare.'"

Here the speaker stopped to note the effect of his message. For a moment both were too much surprised to speak. Then Uncle Henry broke the silence. "What, what dead folks do wid money anyhow?" "That, my friend, is not for such as you to inquire. De Bible say for ter lay up treasure in Heaven, and what is done wid it then is not for us poor worms of de dus' to know." "But lookie heah," put in Aunt Hetty, "if de ole marsa want money why don't he 'ply to de ole missus? She got more money den us poor culid folks." "Dat were a point on which I were about to explain. You see de ole man don't want his wife ter know dat he hab encountered financial difficulties in de odder world, an' he say fer to tell you dat you hab his permission to save de money back outer de price of de nex' year's cotton crop, an' de ole woman won't never know anything about it." At this point a step was heard on the porch and another visitor was announced. Aunt Sallie, one of the women about the place, and one of the foremost helpers at the Professor's meetings. She came with a tale of woe. She told how when she was going home the night before, she had met the General's ghost standing before the mansion. "Yes," she said, "dere he stood, an' I start to run, an' he call 'Sarah!' and I say, 'Sah!' and he say, 'Go an' tell Henry to help me,' an' den when I look again he were gone."

This statement from the mouth of another witness corroborated the professor's story, and the genuineness of the appeal was established beyond a doubt.

Some time was then spent in discussing the situation. Uncle Henry finally resolving to consider the matter for a few days before deciding what to do. The professor having then declined an invitation to stay for supper, much to the relief of the children who were still in hiding, he and Aunt Sallie took their departure, and were seen to be in earnest conversation as they disappeared down the road.

The next morning when Aunt Hetty went up to air the big house she was surprised to find the large old-fashioned portrait of the General as he appeared at the age of twenty-five, hanging face to the wall, and although she carefully turned it, the next morning it was again reversed. This, Professor Bligions declared to be the work of the ghost, and assured them that it would happen as long as the money was not forthcoming.

Thus things went on for a week. Azenweel had been to town and had his plate developed, only to find that the former owner of the camera had exposed the same plate on a flock of sheep, afterwards carelessly allowing it to get into the unexposed box.

With vague notions as to the possibilities of negative-doctoring, Azenweel had asked if the two images could not be separated in some way, and, on being told that they could not, he had comforted himself with the thought that as his mother would not have allowed him to show a print from it anyhow, it did not matter much that it was not good. On this particular afternoon he had been put to hoeing corn as usual, but as soon as his father's back was turned he threw down his hoe and was off to the forest.

Coming to a small, rocky spring that was one of his favorite haunts, he threw himself down in the cool shade and began to think. He had often heard Mrs. Ashley regret that she had no picture of the General as he looked in the last years of his life, and he had conceived the daring project of trying to secure one for her. He had asked Mr. Blake, the photographer, if ghosts could be photographed, and had been told that anything could be photographed, but in such a case you must first find your subject. As the portrait was found turned every morning, it was evident that the General's shade visited the apartment some time during the night; so the problem resolved itself into how to discharge a magnesium flash and expose a plate when the portrait was disturbed. Our little friend was a genius in his way, and had once constructed a fox-trap that had been the wonder of the neighborhood. As he lay there on the ground one place after another was thought of and rejected, till at last he hit upon one that promised success and resolved to put it to test that very night.

Going home by a round-about way, he found his mother absent and Kitty Jo keeping house. He did not even confide to her why he took away his camera and the key to the big house, but warned her not to tell what he had done. Considering the queer things that happened there at night the reader may think it strange that he would venture alone into the dimly-lighted parlor even in daylight, but his head was full of the details of his plan and he really forgot to be afraid.

By a "figure four" arrangement, such as he used to spring his traps, he was able to arrange a weight at the end of a string, to fall when the portrait was disturbed. In falling it would draw a match across a piece of sand paper and into the

flash powder placed just below. As the shutters were closed and the room quite dark he had no fear of spoiling his plate by letting the lens stand uncovered from then till the next morning.

Everything being arranged he returned to his hoeing, working with great energy in order to have something accomplished before his father's return, so as to escape the punishment that would otherwise result.

Uncle Henry's business detained him unexpectedly in town, and it was long after dark when he drove up to the cabin and handed out the basket of provision to his wife After supper, when the children had gone to bed, and he and Aunt Hetty were seated on the porch, he began, "I declar', Hetty, dis thing gone far enough. When I come through the woods ter-night, I hear something moaning like, an' then I hear de ole marsa's voice kinder holler like, cause he bin so long dead. "Henry, Henry," he say, "why don' you help me?" an' I give ole Samson a lick an' git outer dare as quick as I know how, an' I declar', Hetty, I ain't gonter hab dis thing go on any longer To-morrow I go to de bank an' git de money fo' de poor ole marsa, so he kin rest in peace and let us alone."

Though opposed on principle to parting with any of their hard-earned savings, Aunt Hetty agreed to the plan, providing her husband would keep back part of the price of such products of the estate as passed through his hands till the amount was made up.

The next morning at daybreak Azenweel was up and away. He nearly always had fish or game traps set, so his early departure caused no comment from his parents. As he ran down through the garden a rabbit that had been making an early breakfast on Aunt Hetty's cabbage plants bounded away before him, but so great was his haste that he did not even stop to send a stone after it. but ran on up the hill to the mansion. For a moment his courage failed him as he paused on the veranda, and then the true American boy spirit getting the better of the inborn superstition of his race, he unlocked the door and the next moment was looking into the parlor. A shiver ran down his back as the first glance showed him that the portrait was again face to the wall And then—misfortune of misfortunes!—his camera was gone The flash had been discharged, as the condition of the mantel-piece, on which the powder had been placed, bore evidence, but the camera was gone, and no trace of it was left but the holder slide that he had laid on top of the box, and which he now found on the floor. As soon as he realized his loss, he gave vent to his feelings in a long-drawn wail, that echoing through the hall produced such an unearthly sound that he was glad to retreat into the open air. Then he sat down on the edge of the piazza and gave way to his grief, holding in his hand the little paper slide, all that was left of his precious camera.

Then the thought struck him that perhaps the ghost had dropped the camera somewhere in the house, but he could not think of again entering alone, so off he started for home to enlist his father and mother in a general search. The good old people were astonished at the temerity of the boy and were greatly frightened lest some bodily harm might come to him for rashly attempting to photograph the spirit visitor. Aunt Hetty declared that this was even worse than taking pictures in church, but nevertheless she agreed to go back with him to hunt for the missing camera. After searching every possible place where a camera might be concealed, our colored friends gave up the search and went home to breakfast. As they were eating, Aunt Sallie was seen hurrying past in the direction of town, and although Aunt Hetty called after her to tell her of the new developments, she seemed not to hear and was soon out of sight.

After eating, Azenweel proposed trying to forget his trouble by taking a long ramble, and as his parents had not the heart to put him to work at once, he was allowed to wander off down the creek. As he walked along pondering over his misfortune, his attention was directed to a large tree that had fallen and lay partly in the water. When he had been last at the place a number of turtles had been sunning themselves there, and he now crawled out on the trunk to see if they were there again

The turtles were not there, but, could he believe his eyes? down there in the water, lodged among the drift wood and branches was—his camera! No time was lost in securing it, and to his great joy he found that the shutter had been jarred shut in some way, and that there was a possibility that the exposed plate inside might still be safe. He would soon find out, and off he started at full speed for town.

Mr. Blake was engaged in photographing a particularly lively baby, when Azenweel rushed in: "I got 'im! I got 'im! I got de ghos'," he panted. "Very likely," answered Mr. Blake thinking of the little solarized "ghosts" that sometimes appear in photographs. He felt like shaking the little darkey for his interruption, for the little wiggler, whom the fond mother was trying in vain to pose, refused now to even glance at the wildly waving toy with which he was trying to attract its attention, but persisted in gazing at the more interesting colored boy who had so suddenly appeared before it. But

at last patience triumphed over the difficulty, the baby was taken, and Mr. Blake was at liberty to attend to Azenweel.

After entering the dark room the plate was with some difficulty extracted from the holders, and as the development proceeded Azenweel told the whole story.

At last the shape of the gilt frame came out on the plate, and both looked eagerly for traces of the ghost. They did not watch in vain ; surely it was the outlines of a human form that was appearing, and Azenweel in his excitement began to dance about, to the imminent danger of the plates and bottles with which the small room was filled. Little more than an outline came out and then fog set in, and obliterated all trace of the image as seen on the unfixed plate.

J. Will Barbour.

(*To be continued.*)

A PHOTOGRAPHIC TETE-A-TETE.

In my childhood days, shadow pictures, *a la silhouette*, were in vogue. Each Summer a traveling artist went from house to house on our street, soliciting trade.

His paraphernalia was packed in a small bag. One day my brother and myself were called from our mud-pie industry, smartly scrubbed in the polliwog mixture known as hogshead-water, mounted in our high chairs, and told, "now there, sit still." A rod was drawn over features, and a *cut* was the result. These *fac similes* were kept in the keepin' room many a year.

Next came the portable gallery, located near the four corners, where the district schoolhouse stood. Of course we must all be tintyped, so posing in ramrod style, we were "took," and each contributed two pennies, and on committee day we presented the wonderful group to the teacher.

A sort of "lover's leap" was the *carte de visite*, as girls and boys asked for an exchange.

Nowadays one must be ever alert, for all this snap and button-pressing have a meaning. Beware of such mysteries !

Art appreciation differs. "How nat'ral that breastpin is !" says one lady as she poses as a critic before a family likeness. If one wishes to revive antique styles, just turn the pages of the family album, and lo and behold, fashions galore.

Dear friends, just drop in my sitting-room, and let us lift this basket of views. Cross the water, through cathedraled England, Ireland's emerald meadows, the vineries of France, through Alpine Grand, sublime, you whisper, let us remember that not a tithe of all this sublimity is seen by mortal eyes ; only the All-Seeing One can penetrate yonder *crevasse*.

Now, to the storied Rhine, through castled Germania, on, on, to the land of the midnight sun, to the Steppes of Asia. Next, to the Holy Land, and see the Jordan tide, rest under the willow's greenery, gaze on Calvary, and trace the wonderful remains of Eastern art and skill. Here our Saviour trod, here he bore his cross, and here he was crucified. Methinks, one can almost hear the first Easter anthem, that has echoed around the world.

Our basket of views may now be said to have fulfilled a mission, a blessed mission to us stay-at-homes.

Bring that envelope from the corner shelf, and let us now go from shore to shore in our own land. Across the Rockies, forgetting not our Yellowstone and our Yosemite Falls, our Niagara with its rainbow glory, our marvels in the form of red woods, and those fruits on the Pacific Slope that make California the garden of our country. Linger near "The Mount of the Holy Cross," where the emblem of faith and hope, with its setting of snow crystals, seems to consecrate the everlasting hills to the Almighty. Oh ! the wonders this art of arts opens to us. Daguerre never dreamed of its possibilities. All honor to those patient workers, as day by day they watch opportunities to develop their views more true to Nature.

There is a celestial photography, and myriads of heavenly bodies are imaged for our surprise. As we have traveled through lands photographed terrestrially, so may we in the Great Hereafter join company in the lands celestial.

Mrs. S. E. Roessler.

Notes and News.

"The Christmas Number is a splendid number, and I can say every number of your magazine is of the first-class order," writes C. H. Shepherd, Melvin Village, N. H.

A New Edition of H. P. Robinson's "Pictorial Effect in Photography" is announced. It will be ready in a few weeks.

Only 2,152 copies of "The American Annual of Photography" for 1892 remain unsold of the 16,000 copies issued in the first edition. "Nothing succeeds like success !"

The New Plant of the Blair Camera will undoubtedly be located in Pawtucket, R. I. The present officers of the company are ; Darius L. Goff, President ; T. J. Rabbeth, Vice-President ; T. H. Blair, Treasurer and Manager ; S. N. Turner, Secretary.

A FEW HINTS ON COMPOSITION.

IT seems to have gradually grown into an unwritten law that articles for year-books, almanacs, and the like, shall be compressed into the smallest possible compass. Bearing that in mind I am constrained to offer a few very concentrated hints on the great domain of "form in composition" I will first suggest to my readers that it may be of some slight aid to memory if they connect by way of *memoria technica* ten great laws, rules, or principles—call them what you will—with the ten fingers and thumbs; also, carrying this fanciful division farther, and grouping them into five pairs, so that of each pair one may be supposed to be connected with the right hand—the other with the left

I will mention them in pairs, in each case drawing attention to the stronger one first. Thus:

A. *Principality—i. e.*, some one line, light, figure, idea, etc, stronger than all the rest.

a. Subordination—i. e, the remaining parts, not equal, but in graduated scale, so that no two elements are rivals.

B. *Contrast—i. e.*, of form; of light; of subject; to give strength.

b. Interchange—of one part into and with another, to bind, interest, and give relief to monotony.

C. *Balance*—of line, of light, etc.; to keep up interest; to give variety.

c. Symmetry (within very reasonable limits)—to give aid to unity, etc.

D. *Radiation;* to aid; suggest a community of origin, etc.

d. Repetition; to help repose, and calm; to support the main idea.

E. *Continuity*—of parts, of planes of thought—oneness.

e. Curvature—for the sake of relief, of beauty, of poetry.

Now take those of the right hand and run through them a thread of *consistency*, so that all shall be real beyond reality—ideal beyond ideality. And in like manner thread those on the left side with an invisible yet unbreakable film of *harmony*. Finally, now tie these two threads into one indissoluble knot, and call this *unity*.

Alas! the ten have run to a dozen and more—the unlucky thirteen—but yet not thirteen—only one, viz., *unity*—the end and aim of all true art. The binding together of parts into one *harmonious* and united, consistent whole.

Creating, by taking this beauty and that—bringing them together in a manner which *nature suggests and sanctions;* thus giving them *together* a new beauty, such as alone and apart neither can have.

The creation of making one thing of many, of showing that which by its own native worth grows in value the more we contemplate the part it plays as a part—a perfectly adapted part—of that which is in itself not many but one—viz., a work of art.—*F. C. Lambert, in the American Annual of Photography and Photographic Times Almanac for* 1892.

ORTHOGRAPHY OF METRIC TERMS.

AUTHORITIES on orthography are at variance regarding the proper English spelling of the words *litre* (*liter*), *metre* (*meter*), and kindred terms and their compounds or derivatives. Since the next Pharmacopœia will, no doubt, have much occasion to mention such terms, and pharmaceutical literature in general will hereafter more frequently make use of them, it will be of advantage to examine the claims made for both spellings, and to try to reach a decision.

The words involved in this inquiry are mainly the following: *metre* (*meter*), *litre* (*liter*), *titre* (*titer*).

As to "metre," it must be acknowledged that the spelling *meter*, *centimeter*, etc., has become very customary in this country, no doubt through the analogy of other words ending in "meter," which have long been spelled thus exclusively, viz.: barometer, thermometer, hydrometer, diameter, hexameter, etc. We ourselves have up to the present time always written "meter," "centimeter," "liter," etc. On examing those analogous words, however, it will be seen that they all have the accent on the third last syllable—that is, the word *meter* in them is distinctly dissyllabic and the *e* short. On the other hand, the words "centimetre," "millimetre" (or "centimeter," "millimeter") are commonly pronounced with the accent upon the *me*, no matter which way they are spelled. This is due to the fact that these terms were transplanted into English, not directly from the classic languages, but from the French, in which the term *mètre* was chosen to denote a specific kind of measure Both accent and origin of the terms, therefore, justify the retention of the French spelling *metre*. This tendency to preserve the spelling of words which have passed from classic languages into English through the intermediary channel of French, is also evidenced by such forms as color, odor, which forms are supported by British orthoëpists and authorities, though they are less favored by American writers.

The best modern authorities nearly all admit both spellings, *meter* and *metre*. The Century Dictionary evidently prefers *meter* (and *liter*), as it places them first, though it does not say so expressly. On the other hand, Murray's great Dictionary (Oxford) only recognizes the spelling *centilitre*, *centimetre*, rejecting the other. An interesting note regarding the spelling which certain words in *-tre* (or *-ter*) have undergone will be found in Murray's Dictionary under the word *centre*.

As to the words *litre* (*liter*) and *titre* (*titer*), we will be justified in deciding beforehand that they ought to be spelled in analogy to *metre* or *meter*, whichever of these two forms may be finally preferred.

Before drawing a conclusion from the facts so far stated, let us also consider the prevailing modes of writing the term *gramme* (*gram*). It is to be regretted that the Century Dictionary has given the preference to the abbreviated form *gram* (though the form *gramme* is also quoted), no doubt led by the principle (confessedly governing its responsible authors) of eventually reforming English spelling in accordance with modern "fonetics." We are ourselves in full sympathy with the new movement, but object to its application in cases where it might cause awkward or dangerous misunderstanding. The *danger* of the abbreviated form *gram* probably never occurred to the authorities connected with the editorial staff of the Dictionary, and, in fact, it is not likely to occur to one who has not had much to do with prescriptions or technical recipes, or who is not aware that the words *gram* and *grain* have often been confounded either by mere inadvertance or by the breaking off of the dot upon the *i* in grain: *gram—grain*, a confusion which has been *the cause of a number of deaths*. It is true that the form *gram* was adopted a number of years ago, by an International Commission held on the Continent of Europe, as the standard spelling, but neither pharmacists nor physicians had any voice in

this convention. The latter would certainly have pointed out the dangerous consequences, though they might not have prevailed against the arguments of the mathematicians and other pure scientists assembled there.

The last U. S. Pharmacopœia, fully recognizing the importance of avoiding confusion between *gram* and *grain*, adopted the spelling *gramme*, and it is not likely that this will be altered in the next revision of this work.

Assuming, then, that the original French spelling of this word will be preserved, we have here an additional reason for preserving the French forms of the allied terms *metre*, *litre*, *titre*, and of compound words containing these. Accordingly, we advocate a general adoption of this mode of spelling and shall hereafter adhere to it ourselves. We know that a committee of the American Association for the Advancement of Science has had the spelling and pronounciation of these, and of chemical terms generally, under consideration for several years. From a recent report published by this committee, it appears that a majority lean toward the spelling *meter*, *liter*, *titer*. We have no other objection against this way of spelling, except that it is not in harmony with the spelling of the term *gramme*, and we earnestly and seriously protest against the introduction of the abbreviated word *gram* into medicine or pharmacy.

Incidentally we desire to say a few words regarding the abbreviations or symbols used for the terms above mentioned. The International Convention, mentioned above, adopted the abbreviation *gr.* for the word "gram." Manifestly this is a dangerous abbreviation in all countries where the *grain* is still in common use. In France, Germany, and most other European countries the grain has either never existed or has become obsolete, so that there is no chance of any confusion there. The last U. S. Pharmacopœia placed its seal of approval upon the abbreviation or symbol *Gm.*, it being intended that all abbreviations of terms of the *metric* system should begin with a *capital* letter, and accompanying numbers to be written with *Arabic* figures; while abbreviations of terms of the *common* system should begin with a *small* initial, and accompanying numbers to be written with *Roman* figures.

Accordingly, the following abbreviations or symbols ought to be used:

M. = metre.
Gm = gramme.
L. = litre.
gr. = grain.
Mm. = millimetre.
Cm. = centimetre.

The term "cubic centimetre" is, by long custom, abbreviated by using two c's: cc., or c.c, or C.c., or Cc.; also sometimes thus, cm^3, Cm^3. In accordance with the rule that metric terms should be written with capital initials, the last (present) U. S. P. chose "C.c.," but there is no need of the period after the C, as this stands for the adjective "cubic," hence the preferable symbol is:

Cc. = cubic centimetre.

—*American Druggist.*

"The CHRISTMAS NUMBER is an exceptionally interesting one. The half-tone engravings of Mount Hamilton are not to be excelled by any one. The frontispiece is truly an ornament to any fine publication. I heartily congratulate you on your success."—W. G. TODD, Mound City Engraving Co, St. Louis, Mo.

Photographic Societies.

THE PHOTOGRAPHIC SOCIETY OF PHILADELPHIA.

A STATED meeting was held Wednesday evening, December 9, 1891, the President, Mr. John C. Bullock, in the chair.

The Board of Directors made their monthly report, stating that the work on the improvements in the new quarters was progressing favorably.

At the conversational meeting, November 25th, a collection of interchange slides from the Lantern Society of London, England, were shown. They were a remarkably fine set, and certainly one of the best collections ever sent to the society in this manner.

The amendments to the by-laws offered at the last stated meeting, making the annual dues of active members ten dollars, was taken up for action, and after considerable discussion was passed by a large majority.

Mr. Cheyney called the attention of members to an interesting book which he had come across, published in Philadelphia in 1853. It was entitled "Plain Directions for Obtaining Photographic Pictures by the Calotype and Energiatype, etc.; Also Practical Hints on the Daguerrotype," by J. H. Croucher.

He read various extracts from the book, which were interesting as contrasting some of the old-time photographic processes with those of the present day. Peculiar interest, however, was attached to one of the extracts on "daguerreotype panoramique," on account of recent threats said to have been made by Mons. Moissard to prosecute certain Americans for the violation of his patents.

The extract read as follows:

DAGUERREOTYPE PANORAMIQUE.

"This apparatus is constructed to admit of a view of considerable length and of extreme nicety of delineation, being taken with a lens of moderate diameter. The lens is made to have a horizontal movement, which brings it to bear successively upon every part of the horizon within 150 degrees. Having been fixed so that the vertical lines of the object are perpendicular with a line drawn through the ground-glass on which the focus is taken, the prepared plate is placed in a *flexible frame* and retained in a certain curve by stops fixed to the frame. The lens is now turned to the extreme limit of the view to be taken, and then gradually and smoothly moved onward by a rack work attached to the camera till it reaches the other extremity, waiting a longer or shorter time at each point as the object is more or less illuminated. The plates are prepared and fixed in the ordinary way. The use of this instrument is difficult, however, and requires considerable practice to produce good pictures."

A large collection of hand-cameras was shown before the society, and their various peculiarities explained and discussed.

Mr. Carbutt stated that in view of the increase in stereoscopic work it might be well to mention that a very simple way of making transparencies for the stereoscope consisted in the use of cut films with a mat back. To obtain a perfet stereoscopic effect the negative has to be bisected and the views changed around. If the negative was taken on a film it could readily be cut with a square and knife so that they would come together perfectly. Where glass plates were used they had to be cut with a

diamond, thereby running the risk of a rough edge. At the next meeting he intended to show some very good results in transparencies of the kind referred to.

Dr. Mitchell asked whether any of the members had tried the new developer, "para-amidophenol." He expected to show a few lantern slides at the next meeting made by this developer, which was claimed to be the coming developer. So far it was extremely expensive, but it was very powerful, and worked quickly and strongly in a very dilute solution, about one part to two thousand. It was particularly excellent for bromide paper, giving much better whites than could be obtained with oxalate.

Mr. Stirling exhibited the Prosch lamp for pure magnesium powder, which seemed to be one of the best of its kind. He also exhibited a print made by the kallitype process.

Christmas Card.—With the compliments of Captain William Imlah, R. C. A., we have received a pretty Christmas card in the shape of a 5 x 8 photograph. We return our thanks to the gallant captain.

"Mary's Arch."—We have received from C. H. Shepherd, of Melvin Village, N. H., a very interesting photograph made on a mountain near his home "Ossippe" Mountain Park. The subject of the picture is called "Mary's Arch," and Whittier the poet has often gazed upon the scene with admiration, Mr. Shepherd tells us.

"Lover's Walk," is the title of a picture which comes to us with the compliments of Dr. Sinclair, of Halifax, N. S. It is a beautiful 5 x 8 picture, made in Dr. Sinclair's usual manner. We greatly appreciate the wish for a Merry Christmas and a Happy New Year which is expressed beneath this attractive picture.

Colored Photographs.—W. N. Jennings, a valued contributor to THE PHOTOGRAPHIC TIMES, delivered a lecture at the Franklin Institute, Friday evening, December 18th, on the Yellowstone Park, which was illustrated by views in natural colors by F. E. Ives, of Philadelphia. Both the lecture and the pictures were enjoyed to the fullest extent by a large audience.

"The Buffalo Illustrated Express" Prize Contest has been ended, and the prize winners announced. Clarance B Moore, of Philadelphia, wins the first prize of $25, with his figure picture entitled "Tickled to Death." Misses F. S. & M. E. Allen, of Deerfield, Mass., won the second prize of $20, with their photograph of "A Madonna of the Tubs." The third prize is won by Mrs. Frank A. Wade of Buffalo, with "For some, you know, have the gift to work."

Record of Photographic Patents.

465,740. Coin-Operated Photograph Machine. Pierre V. W. Welsh, New York, N. Y.

465,802. Multiplying Camera. John C. Randall and William E. Price, Cincinnati, Ohio.

He Kept Still.—Mother: How did your face get that strained, agonized look in your photograph? Did the light hurt your eyes?

Small Son: No, ma'm. The man tole me to try to keep still, an' I did.—*Street & Smith's Good News.*

Queries and Answers.

189 MISS A. F., Louisville, asks: What is a diapositive? I have asked a professional the same question, but he had never heard of such things.

189 *Answer.*—A diapositive is a diaphanous positive, a positive on glass or any other diaphanous substance, or, as we generally term it, a transparency. Lantern-slides are diapositives and so are window transparencies.

190 P. C. asks: Can you give me a formula for a collodion for solar negatives?

190 *Answer.*—Any good portrait collodion will do, like No. 1 standard formula, page 252, "American Annual of Photography" for 1892. Keep the bath neutral, expose fully, develop to somewhat less than average density. In a solar camera negative we want all possible details, sufficient contrast, and a density that will allow quick printing.

191 T. P. writes: I would like to ask through the Queries of THE TIMES if you consider aristo prints toned in a combined toning and fixing bath as permanent as those toned and fixed in separate baths.

191 *Answer.*—Call again in a year or two, and we shall be able to answer your query with certainty.

192 S. B. S. wants to know how to remove the white spots which sometimes appear on the surface of his registering slides.

192 *Answer.*—When you find the white spots appearing on the surface of your slides, put a few drops of sewing machine oil on a rag, *rub it with the rag*, and then over the surface, and they will be cleared and freed from spots.

193 S. F. H. asks: Is the consumption of collodion still large enough to make the recovery of ether and alcohol from wastes a profitable operation?

193 *Answer.*—Scarcely! Collodion is at present used in large quantities by photo-engravers only. The total amount of it used for making tintypes is not very large. Waste collodion unfit to work with on account of age or improper preparation is but rarely found now.

194 In reply to N. T. we answer: You probably mean to ask "How can broken negatives be mended?" or "How can we print from broken negatives without showing the cracks?" To mend a broken negative is always an ungrateful piece of work, because the cracks will show more or less so long as the glass and, with it, the gelatine film is broken. The best way is to mount the broken pieces upon a clean glass by means of sticking paper fastened around the edges, and when dry print from the mended plate in very weak light. Make a positive in this way, retouch what is objectionable, make a negative from it, and retouch again.

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Commercial Intelligence.

(FROM ENGLAND.)

MANCHESTER, ENGLAND, Dec. 24th, 1891.

The Scovill & Adams Co., 423 Broome Street.

Gentlemen: * * * By the way, my manager wrote you for a lot of the new "Annuals" the other day, before we knew that you had appointed Hampton & Co. sole agents. We wrote them directly we knew, and were lucky enough to catch them at Liverpool, so had a consignment before any one else in England, *I believe, and they are selling splendidly. We have nothing near so good here. It is the best Annual yet published.*

Yours truly,
J. T. CHAPMAN.

Look Here every week for description of new goods, items of interest to the trade, and newsy notes. We propose to keep our readers posted.

Out.—"The British Journal Photographic Almanac" for 1892 is out, and the Scovill & Adams Company have a full supply of the books for the American market.

Wilson's Photographic Mosaics will be out early in the year. Send in your orders for it now. It promises to be better than ever.

Para-amidophenol, in its pure state, as sold by The Scovill & Adams Company, is decidedly "catching on." Have you tried it as yet? It is the best developer for bromide paper and lantern slides, as well as for ordinary negatives.

A New Non-Actinic Paper for the dark-room, "cut-outs," etc., has been introduced by the Scovill & Adams Company, under the name of "Mikado." Try a sample!

From the Present Indication the subscription list of THE PHOTOGRAPHIC TIMES will be more than doubled during the coming year. Many are subscribing in connection with the "Grant Memoirs," and many more (new) subscribers are taking advantage of the offer of THE TIMES for three months for $1.00. "A word to the wise (advertisers) is sufficient."

Charles Cooper & Co., manufacturing chemists and importers, announce that they have added a large plant for the manufacture of sulphuric acid to their works at Newark, N. J. As they burn brimstone they obtain an acid strictly free from arsenic. Their concentrating apparatus is constructed of stoneware and platinum on new principles (patent applied for), and gives them an acid containing less lead than than the ordinary oil of vitriol. For special purposes they can concentrate to 66½ per cent. Baumé (98 per cent. monohydrate) without passing the acid through iron pans, thus obtaining a degree of purity hitherto unknown to acid of such concentration.

The Annual.—"The work is all artistic and should be very satisfactory to the patrons of it, and we are pleased that we occupy a part of it."—CROSSCUP & WEST ENGRAVING CO.

"It is a book that will be greatly appreciated for the useful and reliable information it contains."—*The American Amateur Photographer.*

THE CHRISTMAS TIMES.

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"I have been reading the articles by our friend W. H. Sherman in THE PHOTOGRAPHIC TIMES with much interest, and his portrait in the Christmas number is very good. It recalls the old times when we used to fit daguerreotype cases by the hundred gross at the old headquarters at No. 4 Beekman Street, under the sidewalk."—C. M. CHITTENDEN.

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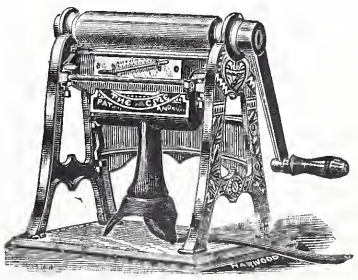
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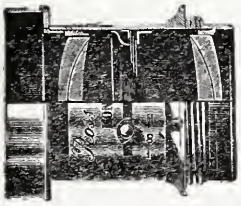
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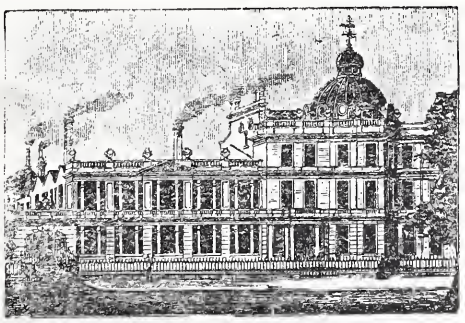
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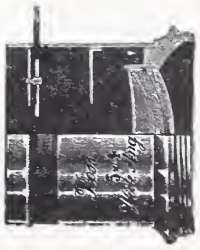
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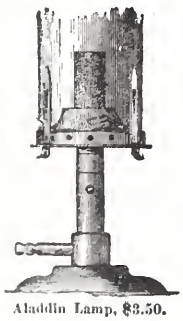
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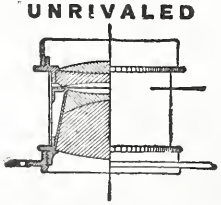
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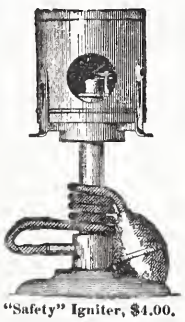
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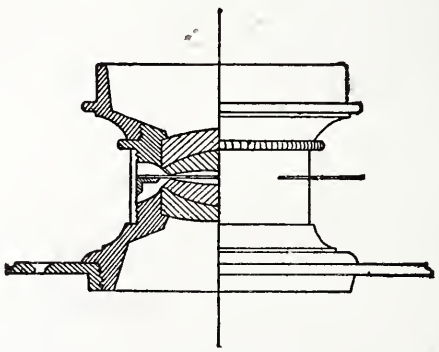
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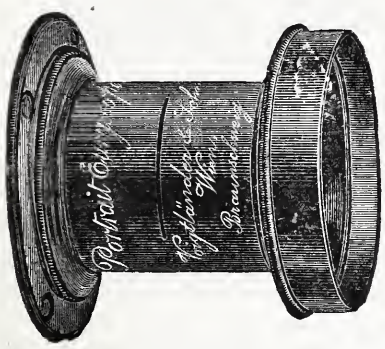
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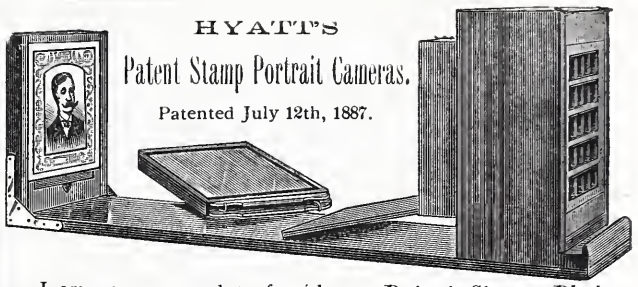
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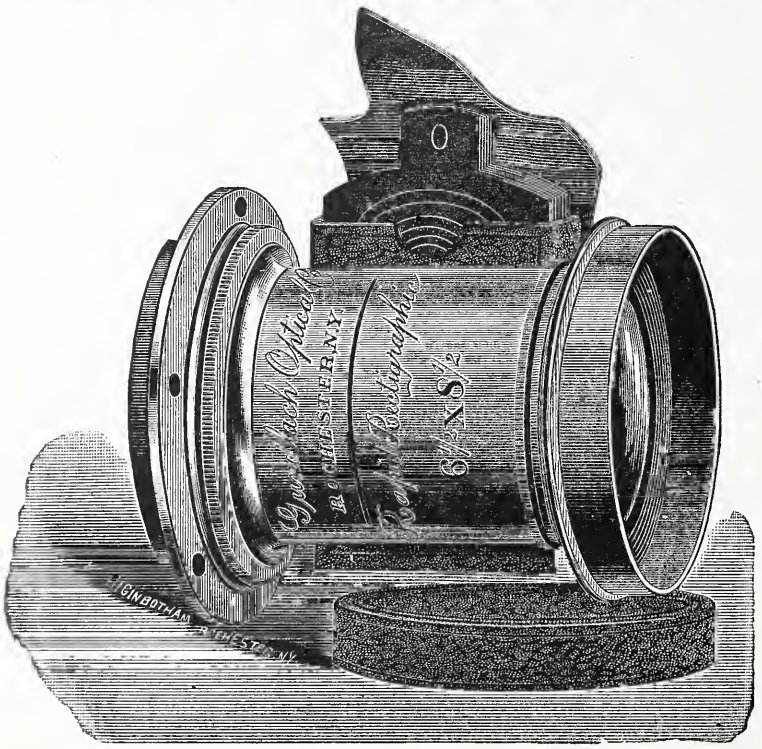
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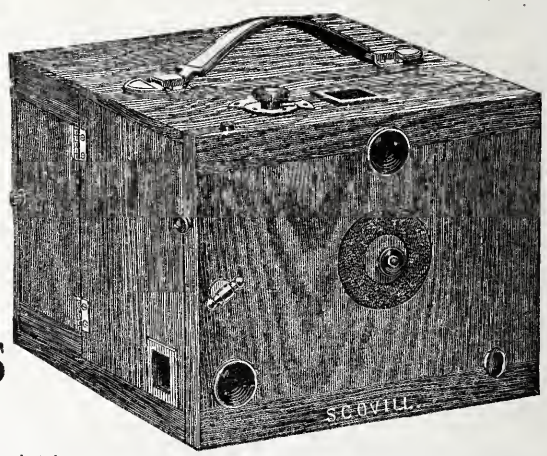
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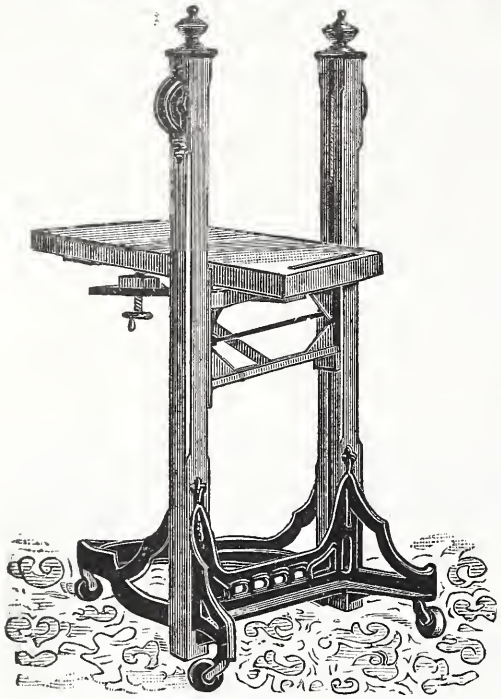
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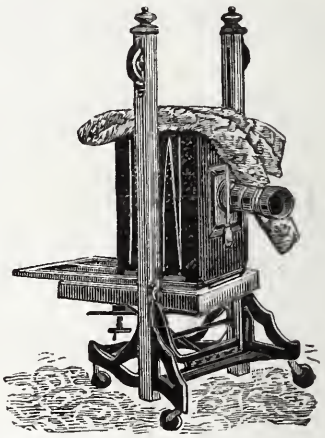
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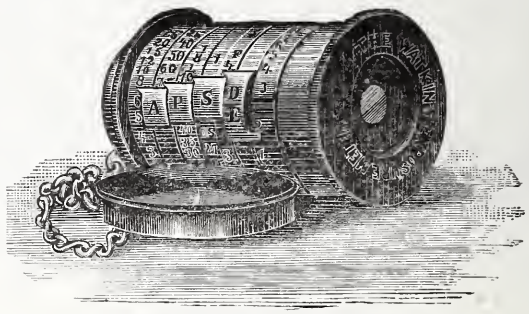
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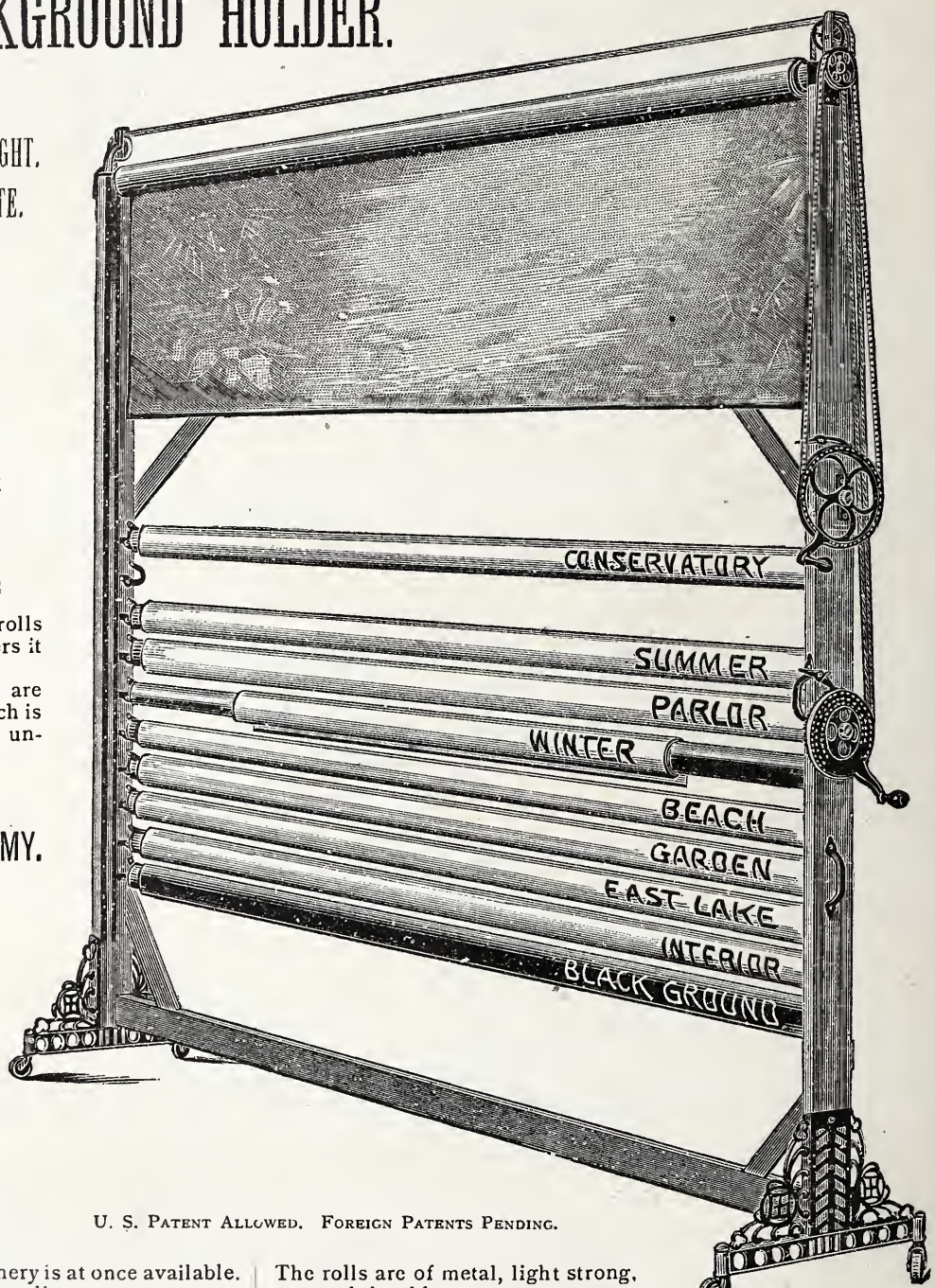
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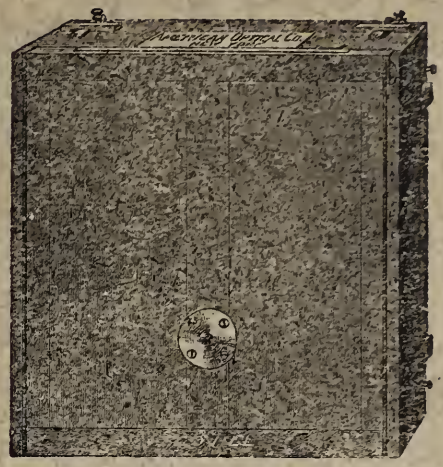
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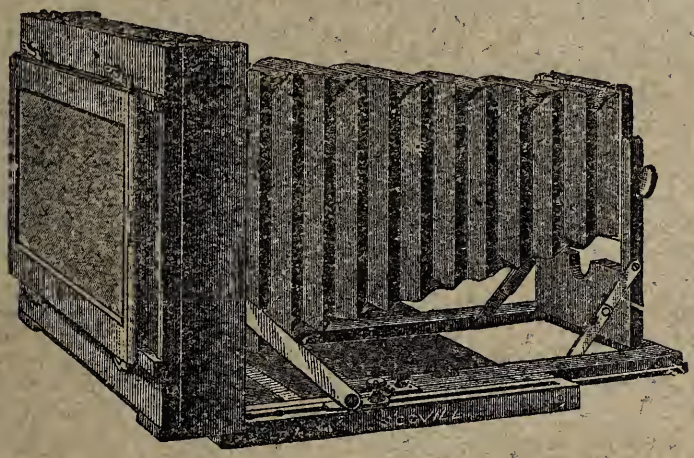
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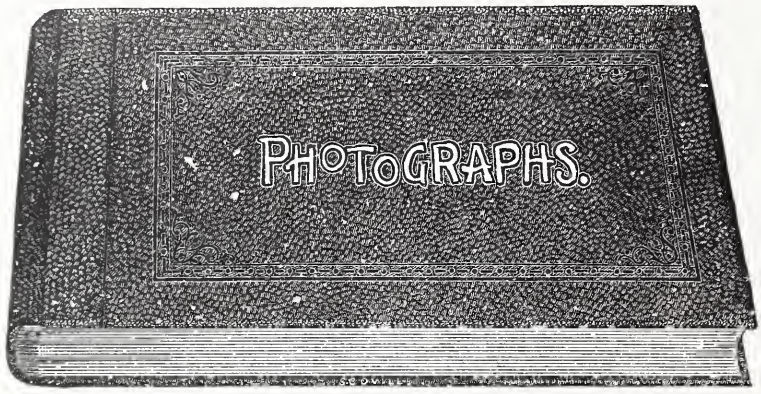
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" 2½.— 8x10 " "	6½x 8½ "	2 00
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" 4. —11x14 " "	8 x10 "	2 50

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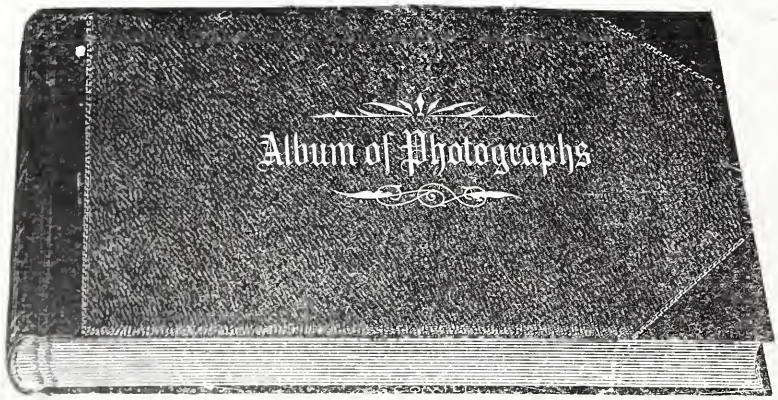
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" 8.—11x14 " "	8x10 "	3 50	" 14.— 5 50
" 9.—14x17 " "	10x12 or 11x14	5 50	" 15.— 9 00
" 10.—16x20 " "	11x14 or 14x17	7 75	" 16.—11 00

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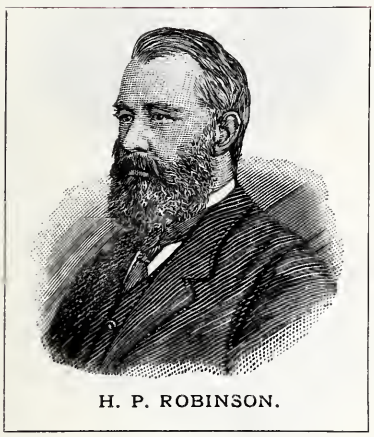
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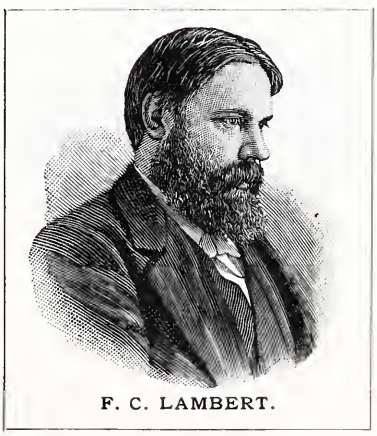
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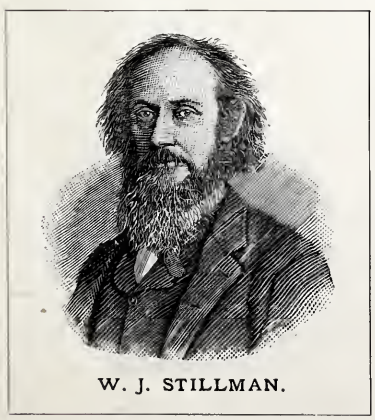
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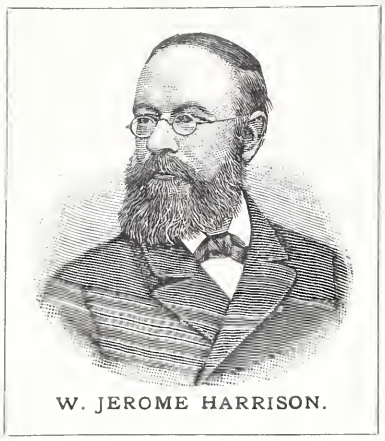


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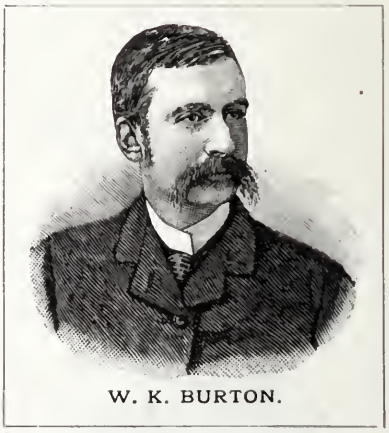
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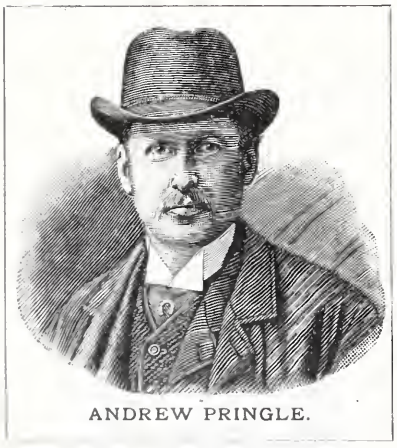
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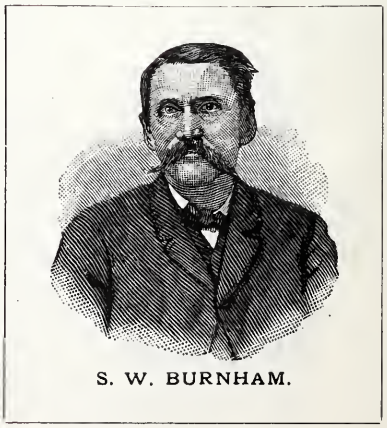
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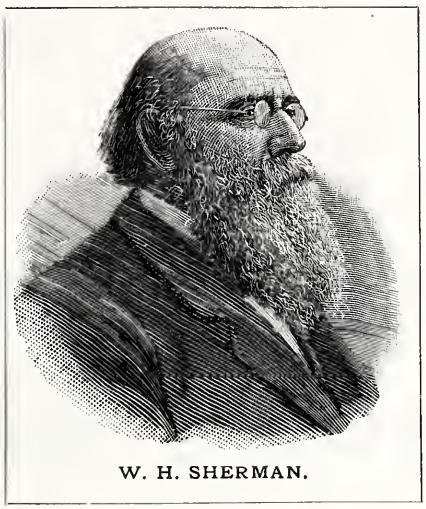
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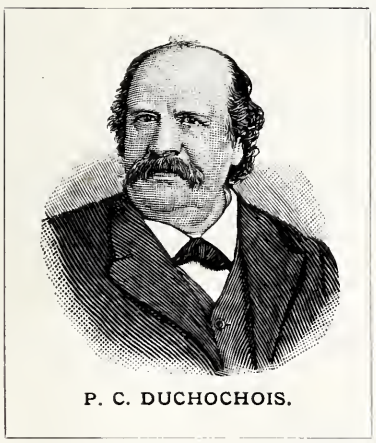
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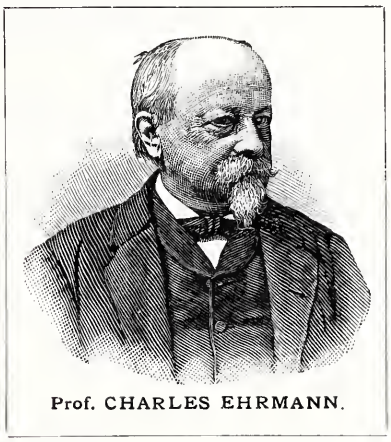


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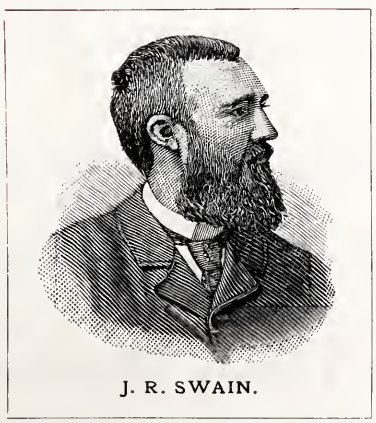


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Sunset at Mid-Ocean

THE PHOTOGRAPHIC TIMES.

VOL. XXII. FRIDAY, JANUARY 15, 1892. No. 539.

"SUNSET IN MID-OCEAN."

THE impressive photogravure which adorns our pages this week is from a 4 x 5 negative by James H. Stebbins, Jr., President of the Society of Amateur Photographers of New York. The plate was exposed in a detective camera, and actually depicts a sunset in mid-ocean. An enlargement from this negative was exhibited last fall at the American Institute Fair, where it stood second in the competition for the Hetherington Camera, which was awarded to the photographer receiving for his photograph the largest number of votes of those who visited the exhibition.

The plate was developed with an eikonogen developer composed as follows:

Water	500 parts
Sulphite of soda (crystals)	30 parts
Carbonate of soda (crystals)	20 parts
Eikonogen	15 parts

"This is the developer I use for all my work," writes Mr. Stebbins; "but, of course, when developing timed exposures I dilute the above with an equal quantity of water."

EDITORIAL NOTES.

THE REPORT OF THE TREASURER of the Photographers' Association of America, as published in another column, shows a balance of $738.31, after paying Sculptor Hartley in full for the Daguerre Memorial. There still remains a considerable sum contributed toward the Daguerre Memorial Fund, which has not yet been collected and turned into the treasury, so that this balance will undoubtedly be increased to some extent before the Chicago Convention.

THE MADDOX FUND.—The following subscriptions towards the Maddox Fund has been received by the editor of the *Revue de Photographie*: Direction de la *Revue de Photographie*, 100 francs; MM. A. Lumiere et fils, fabricants, Lyon, 100 francs; A. Attout Taillefer, fabricant, Paris, 100 francs; A. Davanne, Vice-President de la Société Française de Photographie, Paris, 25 francs; Madame Veuve D. Van Monckhoven, fabricant, Gand, 500 francs; M. M. E. M. Geneve, 5 francs; Demaria, fabricant, Paris, 20 francs; H. Martin, fabricant, Paris, 10 francs; Darlot, opticien, Paris, 100 francs; Bernard Wachtl, fabricant, Vienne, 20 francs; H. Mackenstein, fabricant, Paris, 20 francs.

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BOTH the old and the new subscribers will obtain more than the mere advantage in the subscription price by taking advantage of the above offer; for, if we double our circulation, as we have every reason to expect we shall, judging from the present indications, we shall be able to give our readers a much finer magazine in every respect. We have endeavored to improve the paper steadily from year to year as the steady increase in our circulation has enabled us to expend more on it; but we have in contemplation improvements of greater importance to all connected with the magazine than have yet been possible even to think of. These and other things will be added to it as our friends enable us to proceed.

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WE WONDER if our readers realize the actual value of the pictures which adorn the pages of our magazine from week to week. If they do not they may be somewhat surprised to learn, on applying at a shop where pictures are sold, that photogravures, such as we publish in THE PHOTOGRAPHIC TIMES, cost from 25 to 75 cents each. The phototypes (gelatine prints) are almost as expensive. Yet in our magazine they are sold for 15 cents, and the magazine is thrown in free. Regular subscribers receive these pictures at even a less price, for they obtain over half a hundred of these pictures for $5.

OBITUARY.

GEORGE FRANCIS SCHREIBER.

GEORGE FRANCIS SCHREIBER, who for fifty years was a prominent photographer in Philadelphia, and for many years well known throughout the United States as a photographer, died January 3d, from an attack of bronchitis, the outcome of an attack of "the grip."

Mr. Schreiber was born at Frankfort-on-the-Main on January 10, 1803, and came to this country in 1834. After his arrival here he established a paper called *Die Alte und Neue Welt* (*The Old and New World*). Afterward Mr. Schreiber went into the business of making daguerreotypes in the employ of the brothers William and Frederic Langenheim, who had established a successful gallery at the Exchange Building, Philadelphia. When these gentlemen discontinued business, old Mr. Schreiber opened a laboratory in Harmony Court of the same place, and made talbotypes, or photographic prints from paper negatives. The process of making glass negatives was patented about the same time, and the Langenheims took a patent for making glass positives, hyalotypes, as they were then called, and Mr. Schreiber introduced by these means the first stereoscopic pictures on glass, or diapositives. They were made on albumen films, and in his hands the process was very much improved.

His age advancing, Mr. Schreiber retired from business partly, but assisted with advice his sons, who were of later years engaged in making photographs of animals instantaneously.

Mr. Schreiber was probably the oldest photographer living; with him we lost a landmark of the earliest time, a perfect compendium of the history of photography in all its various phases, he having at the ripe age of ninety years continued to experiment, to master all the newest processes as well as the old. He was a man of scientific attainments, and an honorable gentleman in every sense of the word.

The Philadelphia *Evening Telegraph*, of January 4th, contained a full and interesting account of Mr. Schreiber, from which we make the following reprints:

Experiments were made in taking daguerreotypes at first on the roof of a building on Dillwyn Street, just below Willow, in 1843, the children of Mr. Schreiber being used as subjects and models. When sufficient progress had been made a room was taken in the Philadelphia Exchange, at Third and Walnut Streets, and later quarters were secured at No. 216 (old number) Chestnut Street, partly occupied by James S. Earle as a picture store. Here a thriving trade was carried on, and Mr. Schreiber so improved in the art and science that he made a large sectional camera, and made a view of Niagara Falls that was highly complimented in the award of medals and a flattering letter from Queen Victoria.

Mr. Schreiber was constantly investigating and improving his processes of picture-making, and at this time Fox-Talbot came with his talbotype that revolutionized the business for a while. Its imperfections soon began to retire it when, in 1848, Mr. Schreiber heard that glass had been used in Europe as a negative. He went to work in great earnest, and in a short time succeeded in printing through glass the first photograph ever made in America. These pictures were at first called "talbotypes on glass." Next Mr. Schreiber used ground glass, and produced the hyalotype, from which were evolved the first photographic stereopticon views in the world.

The first successful photographic prints were not made by the firm until several years later. As the art became better known the photographer grew fastidious, and strove to do better work. Considerable difficulty was experienced in developing the negatives and in giving the prints a clear and perfect tone. While Mr. Schreiber was patiently striving to improve these matters the Langenheims withdrew from the firm, and Frederick went to Brazil to make daguerreotypes, while Mr. Schreiber, continuing the photograph business alone, removed to Fourth Street and Harmony Court.

At this time negatives were developed by the use of gallic acid, and although the process was unsatisfactory and often uncertain, Mr. Schreiber's repeated attempts to improve upon it were not successful. In the matter of toning he was more fortunate. Toning is the removing from the print of the silver applied in sensitizing the printing paper and giving it the proper color. Mr. Schreiber accidentally discovered a new process.

A man named Cutting, a resident of Massachusetts, who had taken to photography, seeing one of these well-toned photographs, came to Philadelphia and offered Mr. Schreiber, in exchange for the secret of his toning, a process which he said would be worth millions. Cutting's preparation was a solution of gun cotton in ether known as collodion, which has since come into universal use in photography. In compliance with a promise formerly made to his partner, Mr. Schreiber refused to give up his secret; otherwise his gain would undoubtedly have been great, both financially and in an artistic way.

Mr. Schreiber afterwards removed to No. 818 Arch Street, where, under the name of Schreiber & Sons, he

conducted a portrait studio for many years. Growing tired of the whims and caprices of human subjects, he abandoned this branch and devoted himself wholly to the photographing of domestic animals. Of late years, with the aid of several of his sons, Mr. Schreiber has made pictures of almost every crack bird and the most noted cattle and horses between Gulf of Mexico and the upper border of Canada, not to mention his photographs of dogs and fancy fowls, while his "Studies from Nature" rank among the finest photographs the world has produced.

Mr. Schreiber was intimate with many noted scientific men of this country and Europe, and devoted much of his energy to scientific research. He was a scholar in many languages, and to the end his powerful intellect and remarkable memory remained strong and bright. He was thoroughly American, and, strange to say, was in his boyhood taught by his father the grandeur of the principles of this Government. He was an organizer of the old Philadelphia Maennerchor and an active worker years ago for the present militia system in this State.

GEN. MONTGOMERY CUNNINGHAM MEIGGS.

Brigadier-General Montgomery Cunningham Meiggs, late Quartermaster-General of the United States Army, died at Washington, D. C., on January 1, 1892, at the age of seventy-eight years.

When constructing the new wings of the Capitol, its iron dome and the halls of Congress, and when superintending the building of the Georgetown Aqueduct, the then Captain Meiggs, of the Topographical Bureau, pressed photography for the first time into the service of the Government. John Wood, of Illinois, and Charles Ehrmann, at that time of Pennsylvania, were employed by him to reproduce maps and drawings and to make photographs of different parts of the buildings in progress of construction, of Crawford's goddess of liberty, and the sculptures ornamenting the frieze of Senate wing. Through Captain Meiggs' influence photographers were employed in various departments, and every scientific expedition furnished with the means to record photographically the work done.

General Meiggs was one of nature's noblemen; all who ever came into contact with him learned to love him. His loss will be deeply deplored by his many friends, and by countless subordinates.

The Committee of the World's Auxiliary of the Congress of Photographers has been announced, and is composed as follows: Hon. Jas. B. Bradwell, Chairman; Mr. Gayton A. Douglass, Vice-Chairman; Messrs. C. Gentile, Max Platz, and M. J. Steffens.

THE CHEMISTRY OF PHOTOGRAPHY.

CHAPTER I.

Chemical Composition of the Sensitive Surfaces Employed to Retain the Camera-Image in Photography, and the Chemistry of their Preparation.

The first man who obtained an image upon a sensitive surface by the means of a lens, was Humphry Davy, the famous chemist, in or shortly before the year 1802.* He used paper coated with silver chloride, and his lenses were those of the solar microscope. But silver chloride is much less sensitive to light than certain other salts of silver; and for use in the camera it has been displaced first by silver iodide, and then by silver bromide.

Henry Fox Talbot, too, used silver chloride in his "Process of Photogenic Drawing" which he published in 1839. He made an advance upon Davy's work, in that he discovered that the presence of silver nitrate (upon the coated paper, and intimately associated with the silver chloride) greatly increased the sensitiveness to light of the latter substance. He formed the silver chloride in and upon the paper, by soaking the paper in a weak solution of common salt, and then brushing it over *twice* with a solution of silver nitrate, of strength about sixty grains to the ounce. By the mixture and chemical combination of these two materials, silver chloride was formed as follows:

$$\underset{\text{Sodium Chloride}}{NaCl} + \underset{\text{Silver Nitrate}}{AgNO_3} = \underset{\text{Silver Chloride}}{AgCl} + \underset{\text{Sodium Nitrate.}}{NaNO_3}$$

(*and* / *produce* / *and*)

The slight excess of silver nitrate acts as a *sensitizer*, absorbing and combining with the chlorine gas which is given off when the prepared paper is exposed to the action of light.

$$\underset{\text{Silver Nitrate}}{2AgNO_3} + \underset{\text{Chlorine}}{Cl_2} + \underset{\text{Water}}{H_2O} = \underset{\text{Silver Chloride}}{2AgCl} + \underset{\text{Nitric Acid}}{2HNO_3} + \underset{\text{Oxygen.}}{O}$$

(*and* / *and* / *produce* / *and* / *and*)

But although Talbot succeeded in obtaining images, in the camera, by means of paper coated in this way, yet the necessary exposure was very long—from thirty minutes to one hour—and its use for this purpose was soon discontinued. It is to be noticed that with it Talbot obtained a *printed-out* negative image in the camera; no subsequent process of development being necessary, or indeed possible. This sensitive

* See "Journal of the Royal Institution," of London; Vol. I.

surface of silver chloride has formed, however, the principal printing process for obtaining positive prints from negatives secured by other methods, from Talbot's time down to the present day. It is, in fact, the substance with which ordinary "silver" or "sensitive" paper is coated. The properties of silver chloride are described more fully in the Chapter on the chemistry of printing.

Niepceotype, or Heliography.—The first *permanent* pictures secured by the agency of light, were those obtained by Joseph Nicephore Niepce, of Chalons, about 1816. He dissolved bitumen in oil of lavender, and coated metal plates with it. The plates were then exposed in a camera for several hours. The effect of light was to render the bitumen upon which it acted *insoluble* in oil of lavender; so that the picture could be developed by subsequent washing with that substance. In repeating this experiment, we find that petroleum acts as well as the more expensive lavender oil.

Bitumen, or asphaltum, is composed of the elements hydrogen and carbon, and is therefore termed a hydrocarbon. By exposure to light these elements combine with the oxygen present in the air, or with the moisture in the air touching the plate. The "oxidized hydrocarbon" is then insoluble in liquids in which the hydrocarbon alone would readily dissolve. The change is too complex, and too little of its exact nature is certainly known to enable us to represent it by a chemical equation.

Those who wish to repeat Niepce's experiment will find it better to expose the plate coated with asphalt beneath a negative, rather than in the camera; the necessary exposure to light will then only be ten or fifteen minutes.

Preparation of the Sensitive Surface for the Daguerreotype Process.—In the process published by Daguerre in 1839, he obtained a surface extremely sensitive to light by exposing the surface of a silver plate (silver plated upon copper was always used, to save expense) to the action of the vapor of iodine. Iodide of silver was, of course, produced by the combination of the two elements:—

$$\underset{\text{Silver}}{Ag} + \underset{\text{Iodine}}{I} = \underset{\text{Silver-Iodide.}}{AgI}$$

and *produce*

The iodine was placed at the bottom of a box, and the plate of silver was suspended over it. Iodine readily evaporates, and in two or three minutes the surface of the silver plate (as seen through a little window in the box) had lost its metallic lustre, and acquired the fine yellow hue of iodide of silver. The metallic silver *behind* the surface layer of silver iodide acted as a sensitizer, absorbing the iodine which was given off under the influence of light.

But this surface of pure silver iodide required a rather long exposure in the camera—from fifteen to twenty minutes; and it was not until Goddard discovered in 1840 that by exposing the iodized silver plate to the fumes of the liquid non-metallic element bromine the necessary exposure could be reduced from minutes to seconds, that the daguerreotype process became a real success. The bromine united with the silver iodide to form a compound which may be called bromo-iodide of silver, and which was extremely sensitive to light. The change was indicated by the yellow surface of the plate assuming a rosy hue.

How Talbot Prepared his Calotype Paper.—It is probable that Fox Talbot availed himself of ideas suggested both by Daguerre and by an English clergyman named Reade, in the working out of the process which he patented in 1841 under the name of "Calotype;" but this in no way detracts from the credit due to him for devising so successful a method. He substituted silver iodide for the silver chloride which he had previously employed; and he gave only a short exposure in the camera, developing the latent image thus impressed by a method which Reade had not indeed published, but which he had made known to some of his friends.

By the calotype process, Talbot brushed a solution of silver nitrate over paper, which was then dried and dipped into a solution of potassium iodide. The strength of the solutions was so arranged that there should be an excess of the iodide. By the combination of these two chemicals the paper was covered with a yellow coating of silver iodide:

$$\underset{\text{Silver Nitrate}}{AgNO_3} + \underset{\text{Potassium Iodide}}{KI} = \underset{\text{Silver Iodide}}{AgI} + \underset{\text{Potassium Nitrate.}}{KNO_3}$$

and *produce* *and*

In this state the paper was not sensitive to light, for there was no sensitizer present to combine with the iodine which light would liberate.

When the iodized paper was required for use, it was brushed over with a mixture of gallic acid, acetic acid, and nitrate of silver. It might then be exposed while wet, or it could be dried and kept for use. The "gallo-nitrate of silver," as the mixture just described was called, acted both as a sensitizer and as a developer; the silver nitrate fulfilling the former function, while the gallic acid *developed* the picture. The acetic acid played the part of a restrainer.

The calotype process was much practiced—principally by amateurs, and for landscape work—from 1841 to 1855 or thereabouts.

Chemistry of the Albumen Process of Niepce de St. Victor.—In 1847, the younger Niepce substituted glass plates for the paper support used by Talbot in his calotype process. To enable the chemicals employed to adhere to the glass, Niepce used albumen (white of egg) in which he dissolved potassium iodide, potassium bromide and sodium chloride (ammonia salt). He then converted these three into the corresponding salts of silver by immersing the coated glass in a bath of silver nitrate.

$AgNO_3$ Silver Nitrate + *and* KI Potassium Bromide = *produce* AGI Silver Iodide

\+ *and* KNO_3 Potassium Nitrate.

$AgNO_3$ Silver Nitrate + *and* KBr Potassium Bromide = *produce* AgBr Silver Bromide

\+ *and* KNO_3 Potassium Nitrate.

$AGNO_3$ Silver Nitrate + *and* NACl Sodium Chloride = *produce* AgCl Silver Chloride

\+ *and* $NaNO_3$ Sodium Nitrate.

The plates were then ready for exposure (wet or dry), and were afterwards developed with gallic acid. This process gave beautiful results, but it was very slow; the usual length of exposure being from ten to twenty minutes.

W. Jerome Harrison.

(*To be continued.*)

A DARK-ROOM TALE.

[Related as a variation from "My Developer," "Wrinkles in Developing," "A New Developer," "How to Develop," and other Chestnuts.

RACHAEL and I were out, and this is all about it.

You will say it was a silly thing, but when the female mind becomes charged with an idea, who can say where it will go?—though I will admit that Rachael had a rather trying experience for a short time.

She was a sort of diletante scientist, and from a similarity of tastes grew our acquaintance. So what more natural that I should be an amateur photographer, and she—a would-be one?

When our acquaintance had developed into friendship, or something more, we became a pair of photo cranks or eccentrics, and like those things we did not always balance harmoniously, but frequently disputed whether pyroxalate was the best toning solution for blue prints, or whether hydrochignon was a proper style of wearing the hair when developing prints without aqua regia, or was it a patent stuff for mounting films without wrinkling?

You observe our discussions were not always relevant, and did not always clear up the solution of the question, as we often found ourselves precipitated by the mysteries. But upon general principles we got along as well as the average of young people.

When the question of summer vacation became in order I descanted so enthusiastically upon the attractions of my favorite stopping-place, that Rachael decided to invite her invalid aunt as chaperon, and pass the season there. So the first week in July found us enjoying "no mosquitoes or malaria, and fresh milk, eggs, vegetables and fruits from our own farm," not to mention the "bathing, boating and fishing in the Delarawa river," at Delarawa.

As photography was to be our principal amusement we were not long in getting the traps in order, nor in searching out the many beautiful views and romantic bits (especially the latter) which were within easy walking distance.

The aunt did her best to discharge her duties as chaperon, but as she (poor soul) was rather deaf, and her interjections, being usually wide of the subject, were received with an apparent coolness which was not encouraging, she gradually gave up her efforts to umpire the game.

In the course of events, our plate-holders required refilling, and an interview with the hostess obtained for us the use of a closet under a stairs which led up from the back dining-room. The space was small at best, and when occupied with various articles including odd boots, coats, umbrellas, a stove and a couple of cake crocks, it was rather stuffy. But there was a low shelf along one side, which answered a good purpose in the operations of changing plates, and, the dining-room being darkened to keep out flies, the closet was positively dark.

Rachael insisted on doing the work for herself, and I readily agreed—thinking to myself that I would walk down to the river, smoke a cigar, and perchance discover something new while she was busy.

I soon became interested in the antics of some lads who were catching minnows in their hats, and time flew faster than I imagined. So it was tea time when I reached the house.

When I entered the dining-room, I thought the guests eyed me rather quizzically, and were rather cool in their answers to my salutations. I noticed that Rachael appeared rather flushed and preoccupied, which puzzled me too. What was in the wind? I seemed to be in it without knowing how, or what *It* was.

The tea passed with frequent remarks by the other boarders which were mysterious to me, though Rachael seemed to understand their import and to be irritated thereby.

When the usual evening conversational groups had formed on the verandas I signaled Rachael to come for a walk in the moonlight. The chilly manner in which she threw her wrap over her shoulder and followed to the gate was somewhat depressing, I must confess; however, as my conscience was easy I paid no outward notice, believing her humor would soon change. I was not granted an explanation when I sought it, until I had tried every means of persuasion; but when it was given there was no doubt of the humor or the cause of it.

She said: "You have been at this place several seasons, *Mr.* Trimmer, I believe?" I admitted that I had. "And you have used your camera here too." Why! yes, certainly she knew that too. "Then don't you feel a little bit ashamed at the way I have been treated to-day?" No, I didn't, I had nothing to regret that I knew of.

"Now, there! *Mr.* Trimmer, I did not quite expect that! Even if you did know all about that dark closet, and yet allowed me to shut myself in there without a word of caution, or anything! Just think of it! I was congratulating myself on being nearly done when I noticed a noise down under the steps, and when I looked there was a mouse nibbling a crumb behind one of those crocks.

"I don't care for mice at large, but when that awful little mouse rushed along the shelf straight at me, I—oh, I—thought I should die!

"I just screamed and grabbed for the latch to get out, but—oh!—there was no latch!! It was broken!—and in my fright I upset the red light and—horrors! where was the mouse now?

"I could feel it going all over me! While I was moving about to guard myself I thought I heard another noise, and sure enough, above the roaring of my pulse I distinguished a growl, and saw two balls of green fire which moved as if about to come at me.

"I screamed and pounded the door until I was hoarse and weak, but no one came to let me out of that dungeon. And all the time that growling continued, and a sort of cracking and crunching set me to shivering awfully!

"The bad air and the fright must have stupefied me, for the next thing I knew was Miss Hannah's voice scolding those Isaacs children for making such a racket, followed by vigorous requests for cookies which brought the party to the door of my prison.

"The door was opened, but before any one could move there was a clatter and a rush which scared the children nearly off their feet.

"Miss Hannah was as cool as usual, and only said, 'Drat the beast, there is that cat in this closet again. Why, Miss Toner! 'scuse me, did I open the door too soon for you?'

"'No, indeed, Miss Hannah; I've been trying to attract somebody's attention by pounding and shouting for ever so long; and I was nearly frightened out of my senses by a dreadful mouse; and then, that cat! I did not know she was in there too.'

"'Well, now, that is too bad! And nobody told you the latch was broke?'

"'No.'

"'Why! Mr. Trimmer allus uses that closet, and he ought 'er told you. And there I was a-scoldin' them poor little innocents when they wa'n't to blame. Here, children, have another cookie, each of you.'

"So now you see, Carte Trimmer, you are to blame for my afternoon's fright, and I think it's real mean."

As Rachael ended her recital the moon passed behind a cloud, and a bat circling about came uncomfortably near, while a wide-awake little owl in the tree above us began his quavering night song. Rachael's nerves were rather upset, and these little incidents caused her to forget her previous pique, and as she pressed my arm a little closer she shivered a little and whispered: "Oh! Carte, I'm so glad you are with me now."

* * * * * * * * *

Since I am now with her for better or worse, we often laugh at the reminiscence, as we together watch the development of a plate in the dark-room or prepare for another outing.

C. D. Cheney.

Sir Edwin Arnold, the famous poet, traveler, and journalist, is reported to have expressed great admiration for the photographic art, "for it is an art, and a beautiful art at that, and I both admire and appreciate it very highly," he said to Mr. Bernard Eichelman when being photographed by that operator in the Brand studio, Chicago.

THE PHOTOGRAPHERS' ASSOCIATION OF AMERICA.

TREASURER'S REPORT.

GEO. M. CARLISLE, Treasurer, *in account with the* P. A. of A.

Dr.

1891.				
Jan. 1.	Cash on deposit			$2,328 22
"	Received from W. A. Davis (floor space)			2,472 81
"	" " 294 members, each	$2 00		588 00
"	" " 192 members, each	5 00		960 00
"	" " 214 public admissions, each	25		53 50
"	" " Sales of 11 buttons, each	25		2 75
"	" " Interest on deposit			76 20
"	" " Mr. Hawley			50 00
"	" " Mr. W. M. Knight			20 00
				$6,551 48

Cr.

1891.			
Jan. 22.	Paid draft No. 1. G. H. Hastings, Ex. Com. Expense		$40 79
" " " "	2. W. A. Davis, Ex. Com. Expense		35 65
" " " "	3. G. M. Carlisle, Ex. Com. Expense		44 15
Feb. 3. " "	4. W. G. Stuber, Ex. Com. Expense		53 00
" 10. " "	5. J. P. Wright, Printing Receipt Book		5 00
" 26. " "	6. F. Gutekunst, Certificates		21 00
" " " "	7. S. L. Stine, Ex. Com. Expense		46 76
June 5. " "	8. W. A. Davis, Printing and Postage		83 51
July 17. " "	9. Mr. Carson, Stenographer		125 00
" 18. " "	10. G. H. Hastings, Rents and Help		400 00
" " " "	11. W. A. Davis, on act. Com		100 00
" " " "	12. S. L. Stine, Expense act.		72 55
" " " "	13. S. L. Stine, " "		21 33
" " " "	14. W. G. Stuber, " "		74 75
" " " "	15. W. G. Stuber, " "		13 90
" " " "	16. Forsh & Lee, Ladies' Badges		14 25
" " " "	17. Tiffany & Co., (Bronze)		170 00
" " " "	18. W. A. Davis, Expense act.		68 75
" " " "	19. G. H. Hastings, Expense act.		78 40
" " " "	20. G. H. Hastings, Expense act.		97 98
" " " "	21. G. H. Hastings, Expense act.		89 25
" " " "	22. W. A. Davis, on act. Com		200 00
" " " "	23. G. M. Carlisle, Expense act.		61 95
" " " "	24. G. H. Hastings, Expense act.		167 50
" " " "	25. S. L. Stine, for packers		7 95
" " " "	26. J. S. Hartley, on act.		2,000 00
" " " "	27. J. P. Wright, Printing and Stationery		4 50
" " " "	28. W. A. Davis, Expense act		35 41
" " " "	29. W. A. Davis, Balance of Com.		122 32
" " " "	30. G. M. Carlisle, 10 per cent. rec. Memorial		422 32
" " " "	31. J. Scott Hartley, Bal. on Medals		518 00
" " " "	32. G. H. Hastings, Bal. on Medals		608 00
" "	Postage and Express for year		9 20
			$5,813 17
	Balance to new account		738 31
			$6,551 48

RECAPITULATION.

Total Receipts, 1891	$4,223 26
Total Expenditures	3,295 17
Net gain, 1891	$928 09
Cash on deposit, Jan. 1, 1891	2,328 22
	$3,256 31
Paid J. Scott Hartley	2,518 00
Balance to new account	$738 31

SECRETARY'S REPORT.

W. A. DAVIS, *in account with the* P. A. of A.

Dr.

1891.				
July 15.	Received from J. Bryant	for space		$80 00
" " " "	E. Wuestner	"		81 37
" " " "	L. W. Seavey	"		52 50
" " " "	Simpkinson & Miller	"		27 12
" " " "	Uhlman & Co.	"		78 75
" " " "	Wilson, Hood & Cheney	"		54 25
" " " "	Bradfish & Hopkins	"		54 25
" " " "	Rosenthall & Co.	"		78 75
" " " "	G. Cramer, Dry Plate Works	"		162 75
" " " "	Mr. Thompson	"		60 00
" " " "	Mr. E. A. Gilbert	"		30 00
" " " "	N. Y. Photogravure Co.	"		20 00
" " " "	Lauden & Kent	"		10 00
" " " "	O. White	"		27 12
" 16. " "	Fowler & Slater	"		80 00
" " " "	A. M. Collins Mfg Co.	"		80 00
" " " "	M. A. Seed Dry Plate Co.	"		81 37
" " " "	F. Robbins	"		30 00
" " " "	Mr. Bowles	"		20 00
" " " "	Scovill & Adams Mfg Co.	"		25 00
" " " "	Bausch & Lomb	"		42 62
" " " "	Air Brush Co.	"		20 00
" " " "	Munroe Dry Plate Works	"		10 00
" " " "	E. & H. T. Anthony & Co.	"		153 12
" " " "	Am. Aristotype Co.	"		105 87
" " " "	Buffalo Dry Plate Argentic Co.	"		60 00
" 18. " "	Ph. Bonte	"		42 62
" " " "	W. M. Stone	"		27 12
" " " "	Tucker & Butts	"		30 00
" " " "	Packard Bros.	"		78 75
" 28. " "	Blair Camera Co.	"		422 37
" " " "	B. French & Co.	"		80 00
" " " "	Stanley Dry Plate Co.	"		60 00
Aug. 27. " "	Eastman Co.	"		25 00
" 29. " "	Harvard Dry Plate Co.	"		54 24
Oct. 29. " "	Acme Burnisher Co.	"		42 62
Nov. 25. " "	Sweet, Wallach & Co.	"		85 25
				$2,472 81

Cr.

1891.			
July 15.	Cash to G. M. Carlisle, Treasurer		$816 86
" 16.	" " " " " "		707 98
" 18.	" " " " " "		178 49
" 28.	" " " " " "		562 37
Aug. 27.	" " " " " "		25 00
" 29.	" " " " " "		54 24
Oct. 29.	" " " " " "		42 62
Nov. 25.	" " " " " "		85 25
			$2,472 81

Correspondence.

AN OPEN LETTER.

To the Editor of THE PHOTOGRAPHIC TIMES.

Dear Sir: I have lately worked with the new diapositive and process plates made by Mr. John Carbutt. The images were developed with a strong pyrogallol developer —I do not use any other—well restrained by potassium bromide, and for alkali potassium carbonate added gradually as I have previously explained.

For diapositives the new plates leave little to be desired; for process work they are certainly superior to those I have before employed. I think that still better results will be the consequence of coating the plates with a little thicker film, for then more opacity will be obtained with less after-intensifying.

I write this letter as an open one in order to publicly thank Mr. Carbutt, who, by his experiments—which I know he still continues—endeavors to give us for copying engravings, pen and ink drawings, etc , A1 gelatine plates, that great desideratum of photo-engravers in relievo.

Yours very truly,

P. C. Duchochois.

NEW YORK, Jan. 5, 1892.

Notes and News.

Of Age!—THE PHOTOGRAPHIC TIMES is of age! Having completed its 21st volume, it is now able to vote!

We propose to Double our Circulation, and we can do it; that is, if all will help us. See the editorial notes in this issue.

Paid.—Sculptor J. Scott Hartley has been paid in full for the Daguerre Memorial.

Exceeding Valuable.—In renewing his subscription to THE PHOTOGRAPHIC TIMES for 1892, Mr. C. T. Stuart, the eminent photographer of Hartford, writes: "An exceedingly valuable journal. Kindly continue to send it."

It Will Be a Go.—It is quite probable from the present outlook that the Lowell Camera Club will be started on a new line, once more, for at a meeting of the Executive Committee, last week, assurances of support were received from about 75 amateurs, and of this number 50 have each guaranteed to pay a sum, the aggregate of which will maintain club rooms for one year.

It is quite likely that the club will get rooms and start out next month.

In the "San Francisco Examiner" for December 25th there is a most interesting illustrated article on "What was the Star of Bethlehem?" by Professors S. W. Burnham and J. M. Schaeberle, of the Lick Observatory. Professor Burnham, who, by the way, is now the senior astronomer at the Lick Observatory, seem inclined to the belief that the Star of Bethlehem is Tycho Brahe's periodic star; Professor Schaeberle, on the other hand, thinks it might have been the planet Venus.

The Combined Toning and Fixing Bath.—Writing in the *Photographic Archiv*, Herr E. Liesegang, in recommending a combined toning and fixing bath containing hypo, alum, nitrate of lead, ammonium, sulpho-cyanide, and gold, says that, thanks to the presence of the lead salt, only a small portion of gold need be employed; and, further, that it would be possible to tone without any gold at all. But if, as we always thought, the permanency of silver prints depended, in a large degree, upon the quantity of gold present in the toning bath, this advice seems to us to partake of the penny-wise and pound-foolish character. Whatever else it may contain or lack, a toning bath should not be "starved" of gold, as is, unfortunately, too often the case nowadays. Can this be the reason, or at least one of the reasons, why complaints of the fugacity of modern silver prints are so frequent?

Photographing a "Grip" Germ.—Doctor Watkins of New York claims to have photographed a grip germ under the power of strong magnifying lenses. It is described as white, with sides and fibrous surface covered with hair so fine it could hardly be observed in the original microphotograph. The germ body seemed to be undergoing constant changes, and in the mean time to be scurrying around among the healthy blood corpuscles in its neighborhood. Doctor Watkins thinks that the examination of the germ under the microscope proves that the germ attacks the blood rather than the mucous membrane, and that the pain experienced at various stages of the disease is owing to the wonderful activity or hilarious condition of the germ. While Doctor Watkins attaches great importance to his discoveries under the microscope, other physicians think they do not count for much. They can hardly believe that, after all the study and research of such men as Doctors Koch, Pasteur and Von Leyden in this direction, a New York physician could solve the problem so easily. But in spite of the discussion of these learned doctors, the grip germ marches steadily on its triumphant way, and doctors and laymen alike go down before it.

New Process for the Manufacture of Chromates.—The author describes the following process, which is based on the fact that when chromium oxide is heated with a mixture of calcium chloride and oxide, a chromite is formed, which absorbs oxygen from the air to yield a calcium chromate. The finely powered mineral is mixed with a paste composed of lime, calcium carbonate, and a concentrated solution of calcium chloride, in such proportion that the lime and calcium carbonate are slightly in excess of the amount necessary to combine with the chromium oxide present, whilst the calcium chloride is about one-third of the total lime used. The mixture, on exposure to air, hardens, and is moulded into bricks, which are dried, and subsequently roasted at a temperature sufficient to convert the calcium carbonate into lime. The bricks are exposed to the action of the air for about a month, then lixiviated with hot water to remove the calcium bromide, and the residue containing the calcium chromate is treated with alkali carbonate or sulphuric acid in the usual way, according as an alkali chromate or chromic acid is required.—*Journal of the Chemical Society.*

Spirit Photography.—The following letter was recently sent to the editor of the St. Louis *Spectator:* "Of all the curious phenomena that have been developed the past few years, the most interesting, because the most mysterious, is the taking of portraits of the departed. To most people the theory seems sheer nonsense, while to others it is a positive fact, a demonstration to them beyond all cavil. Being a materialist, yet being ever willing to be convinced of the error of my belief, if such a thing can be done, I was induced to go to a photographer now in the city, who professes to be what is called a medium, and who also professes to take the portraits of the dead he has never seen. My first sitting produced my own portrait with a female face indistinctly outlined just over my head—but I did not recognize the features of the so-called spirit, and this was no test either way. I was accompanied the next time by a lady friend whose portrait was taken, and when the plate was developed there was seen three female faces clustered around above her head, but she did not recognize either of the faces. I went a third time, and the plate showed two faces above my own; withal the "spirits" had placed a rose in the lapel of my coat—that is, the plate showed that I had a flower, which in reality I did not have—but I did not recognize either of the faces, yet I have met people who profess to have recognized the faces that were taken on their plates. I purpose going again, but in the mean time I thought it might be interesting to some of our readers to know of the investigation, who perhaps might be able to report better results than I am up to date. I might here mention that the name of the photographer is F. N. Foster, and he lives at 417 South Jefferson Avenue, where my photographs were taken."

The Photograph Passion.—Why, oh why, will women and girls have themselves so constantly photographed and allow the often unsatisfactory result to be scattered broadcast over the earth? It is an injustice to one's-self to permit an untrue picture to go outside the home circle. If it goes to friends you seldom meet they form their idea of you from the unflattering thing, and insensibly begin to wonder how they could ever have admired you. Then the gown in which you were photographed goes out of fashion, and it is a horrid idea that you may be standing around on some one's table in an overskirt and tight sleeves to be picked up by a girl in an umbrella-case gown, with the loveliest puffed shoulders imaginable, be called "rather pretty, but a dowdy," and set down feet up. Then there is the proud mamma, who has baby's picture taken in a big shell or some other equally idiotic thing, clad in a smile or possibly one sock. There should be a law passed to prevent her sending these wares to everybody she ever heard of in her life. They will lose themselves in a week or two and remain in hiding till the baby is about nineteen years old; then they will reappear and pursue her relentlessly wherever she goes till she is almost frenzied. If a dear one dies the first thing done is to get a lot of photographs and send them to every one who loved her. After a while they drift out of the album or photograph box. The owner dies, perhaps, and her children have not the same feeling about things, and it is a miserable thought that the dear face may be poked away with a pile of papers or old letters or thrown in a scrap basket. It is not even safe to give one to "him," not because of the tales we hear of betrayed confidence and all that—there is very little of that sort of thing in real life, and if an "ex" does not return your photograph he is almost sure to burn it—but because he might put it in one of those silver dollar lockets and then in a moment of abstraction pay his wash bill with it.—*New York Press.*

The Foxy Photographer.—It was in a Bowery tintype factory, one of those places which advertise "Six Imperial Gems for Twenty-five Cents," that may be found on every other block.

The photographer, hearing ascending footfalls on the carpetless stairway, abandoned the critical examination of his front teeth, which he was making with the aid of a cracked hand-glass, and dived into his developing closet. Though nobody but a burglar in the last stages of paresis would have attempted to rob such a poverty-stricken place, the door was protected by a gong which rang when the portal opened.

Bing! went the gong, and the young man entered. The photographer appeared with a printing frame in each hand and received him with a welcoming smile.

"I git spliced ter-morrer," remarked the young man, "an' I want me picter took aforehand, t' see how I look in me weddin' cloes."

The raiment which he wore was evidently fresh from some shop in "de Bay," and was opulent in creases. Cheap patent leathers, a crimson tie, and a hat that barely hid the back of his bullet-shaped head completed his makeup. His left hand was covered by an ochre-colored glove, and on the little finger of the right, which was bare, glittered a gem which would have driven a lapidary to drink. It was red, as large as a lima bean, and glistened like a live coal.

"How many?" asked the tintype man.

"Gimme tree, an' see dat you git de whole uv me in."

He was forced into an absolutely unnatural pose and the camera turned upon him.

"Mind," he repeated warningly, as he rested his bejewelled hand upon his brawny bosom, "de whole uv me!"

The picture was taken. A long time was spent in touching it up. Finally it reached the sitter's hands. He inspected it carefully and smiled. The type was a wretched piece of work, and the only thing that stood out from its foggy outlines was an enormous jewel, decking the right hand of the person pictured.

"Satisfied?" queried the photographer.

"Cert. I've bin t' four uv youse guys t'-day and you wuz the first t' git me rooby in. Say, I'll bring me wife aroun' nex' week an' you kin take her with the diamun pin I gave her."

Then he paid and went upon his way contented.—*New York Commercial Advertiser.*

"**The issue** of the 18th of the current month is the Christmas number of THE PHOTOGRAPHIC TIMES, one of the most interesting papers devoted to the 'taking art.' It is presented with an increased number of pages and added pictures, the reproductions of some of the recognized photographic artists. Each is a 'perfect picture.' In addition to this there are presented portraits of a large number of persons who are devoted to the art of photography. The majority of a number of highly instructive articles are made brighter in appearance by the initial letter being printed in bright red."—*San Francisco Call.*

PARA-AMIDOPHENOL.

A NEW developer naturally takes some time to find its proper place in the estimation of photographers, for, whatever its intrinsic qualities, it is pretty certain to possess some peculiarities that have to be mastered before a real judgment can be arrived at as to its value. In the earlier days of gelatine plates there was a choice of two developers, each equally novel to the majority of photographers, who very largely gave their preference to the one which most resembled in its behavior what they had been accustomed to with wet plates. Ferrous oxalate, being practically a "one-solution" developer, performing its task in a single operation, much in the same manner as the familiar solution of sulphate of iron and acetic acid, and moreover yielding an image much more of the wet-plate type, took the fancy of the old wet-plate worker sooner than alkaline pyro, with its more complicated method of working, simply because the latter required more learning; but as the knowledge of how to use pyro increased, and the functions of the different constituents of the developer began to be understood, its superior capabilities were recognized, with the result that it soon displaced ferrous oxalate, except for positive work.

Hydroquinone, and subsequently eikonogen, next came into the field, and, after figuring as chemical novelties for a while, gradually became the subject of serious trial, giving rise to endless controversy as to their real value, and even at the present time neither can be truly said to have taken a fixed position. Though each of them may have numerous friends and admirers, it will scarcely be denied that pyro still remains the general favorite, and that in spite of drawbacks from which the younger rivals are free.

The newest addition to our list of developing agents, para-amidophenol, although it has been before the public now for some time, has not yet passed out of the novelty stage, and it will in all probability be long yet ere it secures any very general adoption. All the accounts of its behavior have been, so far as we are aware, entirely favorable, and in many cases even enthusiastic; but this is generally the case, for the experimentalist is prone to go into raptures over any new thing that proves tolerably successful at the outset, without waiting to discover its shortcomings, or measure it comparatively with pre-existing methods.

In saying this we do not for a moment intend to decry the new agent, nor to suggest that its praises have been over-sung. On the contrary, we are bound to confess that para amidophenol starts with a better record than either of its immediate predecessors, so far as the quality of its results and its general adaptability are concerned. But the question to be decided (and that can only come with time) is, does it offer any real advantage over pyro, hydroquinone, and eikonogen? Its sponsors claim it to be the most powerful developer extant, which possibly it may be, and yet without satisfying every requirement; but, at any rate, there must be reckoned on the other side of the account its insolubility, which forms a serious hindrance to its general adoption.

We have purposely deferred expressing any definite opinion on the new agent, samples of which were sent to us some time ago by Messrs. Becker & Co., until we had had opportunities of giving it a pretty extended trial, and, though even now we can scarcely consider ourselves in a position to arrive at a decisive judgment, we can at least indicate some of the most noticeable features in its character.

Without going into ecstasies on the matter, we may at once say that the first impressions of para-amidophenol are decidedly favorable, so far, at least, as its developing action is concerned. It is rapid in its action, clean in working, gives an image of excellent quality, and seems to be peculiarly elastic in its capabilities, though precisely the same may be said of pyro, and perhaps of other developers.

But the first drawback is found in its comparative insolubility, which renders it almost if not absolutely compulsory that it be employed as a one-solution developer, as, without the alkali, it is practically impossible to get sufficient dissolved to form a useful stock solution. There is, perhaps, no reason why we should object to a developer which is complete in a single solution if it does its work as well as another; but it is difficult to believe that, under such circumstances, there is as much control over the action, as it progresses, as when, by the addition of alkali or restrainer, deficiencies or errors in exposure may be rectified so soon as they become apparent.

It is true that in the old wet-plate days the developer was a single solution, and exposures had to be timed with something approaching accuracy, in order to insure success, and possibly the general quality of the work turned out was none the worse for that; but, under the new *régime* of dry plates, the system of "rational development," as it has been called, *i.e.*, the modification of the developer to suit the image as it progresses, has always found greater favor than the application of a complete solution, whether mixed at the moment or kept in stock, Even with ferrous oxalate, originally a one-solution developer pure and simple, the practice of modifying the solution as the plate seemed to require it gradually crept in, and, so long as our sensitive films continue to possess the latitude that permits this patching up of a wrong exposure, so long will the so-called rational development be resorted to.

For a single solution developer para-amidophenol behaves remarkably well. It keeps well, remaining colorless for a very long period; some that we prepared upwards of three months ago is apparently unchanged, and so far as we can judge retains its energy intact. Its developing action is rapid, and great nicety in exposure does not appear to be a necessity as with most single solutions, the effect of variation of exposure showing itself in the time occupied in developing.

The strength of the solution, too—so far, at least, as regards the reducing agent itself—appears to exercise surprisingly little influence on the energy of development or the density of the image, which may partly account for the wide divergencies in the published formulæ. These, we have noticed, vary in their contents between five grains and one-fifth of a grain of the hydrochlorate to the ounce of water, the former, it is true, being in conjunction with sodium carbonate, the latter with sodium hydrate. But, on the other hand, the proportion of alkali has a most marked influence on density—indeed, this alone appears to constitute a most important means of controlling the character of the image. It has been said that para-amidophenol is especially noticeable for the great density of the image it gives, but in our experience this is only the case when an excess, or at least a very large proportion, of alkali is employed.

Another statement which we find at variance with our own experience is, that it gives (invariably, we may presume is meant), a steel blue or blue-black deposit. This may be the case when an excessive quantity of the reducing agent is used, for we find the image increases in blackness in proportion to the strength of the solution; but, when moderate proportions of the reducing agent and alkali are used, the prevailing color is brownish-black, much resembling a good wet-plate negative, with very often the same rich surface bloom. On collodion emulsion plates, without giving a protracted exposure, we have had tints nearly approaching claret.

We commenced our trials with the following formula, which answers well as a basis:

Para-amidophenol hydrochlorate	60 grains
Sodium sulphite	60 grains
Sodium carbonate	400 grains
Water	20 ounces

but we subsequently found that, when diluted with four or five volumes of water, the solution acted nearly as quickly, and brought out just as much with a given exposure, though the image was much weaker, from dilution of the *alkali*. On proportionately increasing this, the density returned, and we do not see any reason for using a greater strength than 1 grain to the ounce for ordinary purposes.

Another claim made is that this developer may be used over and over again, if only alkali be added after each operation to replace that expended. It is well known we have set our face against this practice, when mentioned on former occasions, and we cannot alter our opinion now, even though repeated use seems to affect this developer much less than others. The strengthening with alkali may answer very well for three or four successive developments, but it introduces an element of uncertainty that would be fatal to uniformity of work if practised on a large scale. If the solution be used repeatedly without addition of fresh alkali, the effects are prolongation of development and rapid weakening of the image, but no loss of detail from accumulation of the bromide, as is usually the case.

This brings us to the question of the desirability or otherwise of using bromide either as a restrainer or for the purpose of greater clearness. For the latter there seems to be no necessity, while as regards restraining power—that is to say, as affecting exposure—it possesses little or none. It acts as a retarder of development simply, the same result being given with bromide as without, though the development will be slower.

As the most energetic developer in existence, we might expect that some advantage would accrue in the matter of exposure from the use of the new agent, but we do not find such to be the case. Though with very short exposures perhaps there may be a trifle more vigor in the finer details, para-amidophenol will bring out no more than either pyro or eikonogen properly used; while, on the other hand, over-exposure produces comparatively less effect than with any other developer we are acquainted with.

We have confined our remarks so far entirely to the combination with sodium carbonate, as we have made but few trials with the hydrate. As with hydroquinone, however, the hydrate makes a much more energetic developer, and renders it possible to still further reduce the proportion of the reducing agent, which will be a distinct advantage so long as the present high price prevails.—*British Journal of Photography.*

Photographic Societies.

THE COLUMBUS CAMERA CLUB.

THE Columbus Camera Club held its last metting of the year 1891 the evening of December 17. This being the annual meeting had the effect of bringing out the largest meeting the club has held for the past three months. Many faces were seen that usually do not attend very regularly. The formal action of awarding the Bausch & Lomb lens and shutter was performed by the President, together with the findings of the judges. The recipient, Mr. H. Irvin, responded appropriately, and passed around the cigars. The officers of the past year submitted their reports, following which the officers for the ensuing year were elected.

Mr. Perry Smythe was chosen President; Mr. H. Irvin, Vice-President; Mr. W. B. Kimball, Secretary; Mr. C. S. Bradley, Treasurer; and Mr. E. Huffman, Librarian.

After the club adjourned the newly elected President escorted the members to a banquet room, where the supplies of the season were furnished to the satisfaction of the inner man. After exchanging jokes and stories all departed for their homes completely satisfied that they had chosen wisely for their President.

The thanks of the club are here tendered the publishers of THE PHOTOGRAPHIC TIMES for their valuable periodical, which contributes so much photographically to the members.

On Monday evening, December 31st, Wells Post hall was filled with the friends of the Columbus Camera Club to enjoy their sixth public entertainment, "Yosemite Valley." This set of seventy-nine magnificent pictures of one of nature's grandest works were thrown on a large screen by the lantern in the hands of Mr. W. Brown, while the interesting accompanying lecture was clearly delivered by Mr. F. H. Howe.

The audience appreciated highly this entertainment, which was an example of the worthy work our camera clubs are engaged in. The California and Columbus Camera Clubs have the thanks of their many friends for this enjoyable evening.

Jos. N. Bradford.

The Editorial Table.

Deutscher Photographen Kalender fur 1892, published and edited by Karl Schwier, of Weimar, has again made its appearance and in a much improved form. The book is not only valuable on account of its calenderium, a large collection of useful recipes and a variety of tables, but also on account of a thoroughly revised list of photographic societies and their members, etc., etc.

The report of progress, written by Professor Bruno Meyer, of Berlin, is a very valuable article. He rehearses thoroughly but impartially the events of the year past. The occurrences at the Vienna exhibition, Muybridge's exhibitions in Germany compared with Anschütz, the very interesting fall London affair, the controversies between Victor Schumann and Professor Vogel on spectrum photography, Lippmann's color photographs, Edison's kinetograph, the kallitype, in fact every novelty or improvement is carefully and scientifically treated. For Professor Meyer's report alone the "Kalender" is

one of the most interesting books of the season, and we recommend it to all American photographers familiar with the German language.

A magnificent copperplate engraving by E. Obernetter, after a negative by Fritz Müller, and a Lichtdruck by Henry Riffarth embellish the book.

Deutsche Photographen Zeitung, the organ of the great German Photographers' Association, comprising now 719 members, has reached a circulation of 3,500. To Herr Karl Schwier, the editor, and at the same time the president of the association, credit is due for having made the *Zeitung* what it is now. But a few years ago the circulation was scarcely as many hundreds as it now counts thousands. Under his able editorship the paper has been steadily improved and is now one of the foremost of German photographic publications.

The Electro-Tint Engraving Company, of Philadelphia, send us an artistic calendar containing a half-tone engraving etched on copper from a negative of the U. S. S. "Petrel."

From Lingfelder, photographer, Wabunsee, Kas., we have received a cabinet picture, a horse and buggy, which is very good, considering the circumstances under which it was taken.

From Mr. Ralph Cleveland we have received a pretty little souvenir of Minnesota containing four picturesque bromide prints. They are neatly mounted on a pleasantly tinted rough paper with titles painted beneath, and the whole bound in paper covers tied with silk cord.

We have received from Harry L. Ide, of Springfield, Illinois, two very handsome Omega prints; one shows a group of "Haulers" loading sand on the banks of the Sangamon River, and is a very handsome landscape; the other is an excellent view of the Lincoln residence in Springfield, Illinois.

The Public Ledger Almanac, presented with the compliments of Mr. George W. Childs, has been received. This is the twenty-third annual issue of this almanac. The *Ledger* Almanac has become a home book of reference and a treasury of information on legal and other subjects. No care or expense has been spared to make it eminently trustworthy.

The Acme Burnishing Co., of Fulton, New York, sends out to its friends a very attractive calendar ornamented with a steel engraving of the popular picture entitled "Calling the Cows." There are other ornaments on this calendar, and the beholder is reminded of the fact that the Acme Burnisher Co. are manufacturers of the "Automatic Kodak, Counters, Stationary and Rotary Burnishers, Print Trimmers, and Amateur Burnishers. The calendar came to us "with best wishes for '92," and is much appreciated.

Record of Photographic Patents.

466,338. Photographic Camera. Willard H. Fuller, Passaic, N. J.

466,534. Art of Preparing and Transferring Photographic and other Designs for Engraving. William J. Charlton, Providence, R. I.

Queries and Answers.

197 P. B. J. writes. Through Queries and Answers kindly give me the formula for making and working the kallitype?

197 *Answer.*—By the original method paper is coated with a strong solution of neutral ferric oxalate, dried quickly and printed till middle tints begin to show, not as deep, however, as is done with developable platinum paper. Developing is done with the following solution:

Nitrate of silver	50 grains
Citrate of sodium	800 drachms
Bichromate potassium	1 grain
Distilled water	10 ounces

Dissolve the nitrate of silver in 1 ounce of water, and the citrate of sodium and bichromate of potassium in the remainder, and mix. The precipitate formed is dissolved in strong ammonia, of which about 1 fluid drachm is required. After filtering add a few drops of nitric acid, not as much, however, as to cause a precipitate. After developing wash the print in a weak solution of citrate of sodium, to which a few drops of ammonia have been added.

We have simplified the method by coating the paper with a solution of sodium ferric oxalate, 25 in 100, and develop with a solution of nitrate of silver, 2 in 100, acidified slightly with citric acid.

The newest kallitype paper is coated with a ferric oxalate and a silver salt, formula not yet made public, and developed with borax and rochelle salt or tartrate of sodium and potassium. The paper works extremely well, and by modifying the developer a variety of tones is attainable.

198 CLARA M.—When mixing pyro with sulphite of sodium and water the solution turned very dark after a short time standing, which makes me think our river water may possibly contain iron. How can I determine this presence of iron in the water?

198 *Answer.*—The fact of your pyro solution turning dark is probably explained by the sulphite of sodium used containing very much carbonate of sodium. But if you want to test the water for iron boil a small quantity, say half a test-glassful, add a few drops of nitric acid, and finally a little of a 10 per cent. solution of sulpho-cyanate of potassium. If the solution turns red iron is present.

199 MATT SILVER writes: Will you kindly inform me through your columns as to the best method, or as to any method for the matter of that, to obtain a matt surface on Omega paper. Inquiries made to the manufacturer remain unanswered. I have seen it advised to squeegee the wet print upon ground glass. This I have tried with partial success, but could detach only portions of the picture from the glass, the rest adhering firmly to it.

199 *Answer.*—The glass must be finely ground; it must be absolutely clean; the print after being squeegeed upon it must be dried spontaneously at a low temperature, and all warming or heating be avoided. To clean glass well or to destroy all organic matter adhering to it, soak it in a solution of bichromate of potassium 1 in 10, to which one quarter of a volume of commercial sulphuric acid is added, and wash well with pure water.

THE PHOTOGRAPHIC TIMES.

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W. I. LINCOLN ADAMS, Editor.

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THE PHOTOGRAPHIC TIMES PUBLISHING ASSOCIATION,
423 Broome Street, New York.

Commercial Intelligence.

A CHANGE IN BUSINESS.

ATLANTA, GA., December 31, 1881.

To the Editor of THE PHOTOGRAPHIC TIMES.

Dear Sir: It affords me pleasure to inform you that I have disposed of my drug business this day, and shall hereafter devote my exclusive attention to the Photo Stock business, and the manufacture of photographic chemicals.

Trusting that our continued relations will be as pleasant as heretofore, I am, wishing you the compliments of the season and a prosperous and happy New Year,

Yours truly,

Thos. Shumann.

A NEW BUSINESS.

To the Editor of THE PHOTOGRAPHIC TIMES.

New York City.

Dear Sir: On the 1st inst. Mr. Henry Reichenbach, Dr. S. C. Passavant and the writer severed business connections with the Eastman Company, of this city. We expect to engage in manufacturing business on our own account. I have made and perfected what experts have pronounced as a very valuable invention in photography, which, with some other specialties, will be what we expect to manufacture for the trade.

Announcement will be made through your valuable journal at an early date,

Very truly yours,

Gus. D. Milburn.

ROCHESTER, N. Y., January 6th, 1892.

The firm of F. Jay Haynes & Bro., photographers and publishers at 392 Jackson Street, St. Paul, Minn., have dissolved by mutual consent. Mr. F. Jay Haynes will continue the business of the firm, assuming all indebtedness, to whom all accounts due the firm should be paid. Mr. F. E. Haynes will continue in the photographic business at the Jacoby gallery in Minneapolis, which was recently purchased by him.

The extended illustrated article on amateur photography in Denver, which formed a leading feature of the *Colorado Sun*, of January 3d, contains two pictures from "The American Annual of Photography"—"Bye, Bye, Papa" and "I Love 'oo." This is certainly a high compliment to the "Annual."

A Complete Photographic Library.—The Scovill & Adams Co. have recently received an order from Yokohama for one each of every photographic book which has ever been published by them, including bound volumes of THE PHOTOGRAPHIC TIMES from its origin, and all the "Annuals," also including Wilson's photographic publications as well. These books are for the private library of a wealthy amateur photographer. It will certainly be a very complete library.

The Prospectus of "Photographic Mosaics" for 1892 has been sent out by the publishers, and states that this annual will contain fifteen full-page illustrations this year. Besides the Progress of Photography during 1891 by the editor, there will be valuable articles by H. P. Robinson, Dr. John Nicol, Ernest Edwards, Alfred Stieglitz, Professor Charles Ehrmann, General Joseph E. Brown, W. H. Sherman, W. I. Lincoln Adams, Dr. J. J. Higgins, Miss Catherine Weed Barnes, J. F. Ryder, E. Long, Victor Schumann, Leon Vidal. W. K. Burton, and many others. As the supply is limited, those who desire this valuable issue should order at once.

Not Bluster, but Fact.—Though our actual circulation is probably twice that of any other photographic periodical published in this country, we propose to increase the gap between THE PHOTOGRAPHIC TIMES and its would-be competitors. An incredible number of new subscriptions have been received through the offer of Grant's Memoirs alone; the beauty and value of our Christmas number have brought a great many more; the 'Annual,' which has been a most successful "missionary" for us from the first, has sent us more subscribers this year than ever before. THE PHOTOGRAPHIC TIMES is expanding! This is not bluster to influence advertisers; it is fact.

"Even so technical a journal as THE PHOTOGRAPHIC TIMES comes gaily dressed in recognition of the holiday season. It is a handsome double number, with excellent photogravures, red and black initial letters, each paper ending with portrait and signature of the author Its subscribers are promised 'A Year with Experts,' H. P. Robinson having been engaged to prepare a series of papers on 'The Art Side of Photography,' the Rev. F. C. Lambert, M.A., 'Practical Hints and Suggestions,' and W. J. Stillman studies in pictorial photography, photographic manipulation, etc. Other contributors will be W. Jerome Harrison, W. K. Burton, Andrew Pringle, W. H. Sherman, of Milwaukee, Professor Charles Ehrmann, and Professor S. W. Burnham. The magazine is published at 423 Broome Street, New York City."—*Milwaukee Sentinal.*

Appreciated.—"I cannot renew my subscription without telling you that I appreciate the TIMES very much. . . . I am but an amateur, and I find your magazine very helpful.

"Wishing you a prosperous New Year, I remain,

"Yours respectfully,

"J. N. BARNES, St. Johns, N. B."

STILL THEY COME.

THE sale of the "American Annual" for 1892 continues to increase. In addition to the large sales made by the dealers which we spoke of last week we may mention in this issue the following foreign cities where dealers have bought largely of this year's issue of the "Annual." Though American in name, and giving prominence to American photographic interests, this book is truly international in character, containing articles by the prominent photographic experts the world over, and being sold in every country on the globe where photography is employed. The foreign cities are as follows:

London, England.
Yokohama, Japan.
Havana, Cuba.
Lima, Peru.
Christine, Norway.
Sidney, N. S. W.
Manchester, England.

OTHER AMERICAN DEALERS who have duplicated their orders, though they ordered largely in the first instance, are the following:

Obrig Camera Co., George Murphy, New York; Sargent & Co., Cleveland; Douglass & Shuey Co., Chicago; Sweet, Wallach & Co., Chicago; R. Dempster & Co., Des Moines; C. T. Shape, Milwaukee; and Sessions & Kuhne, Toledo.

"A charming volume."—DR. NELSON B. SIZER.

"It is the best yet and improving every year."—ALEX. HENDERSON, Montreal, Canada.

"It wins the annual race at a canter, and beating the record at that."—ALFRED STIEGLITZ.

"I am quite delighted with the 'Times Annual.' It is quite a little library in itself."—*E. H. P.*

"A magnificent book both inside and out."—W. S. WATERBURY.

"It is simply elegant, and brimful of good things."—F. M. ROOD, Poultney, Vt.

"I congratulate you on its success, and the improvements which it shows."—C. W. CANFIELD.

"It is certainly a most valuable work for both the amateur and professional, and I cannot see how any camerist can do without it."—GEORGE C. RHODERICK, JR.

"It is of great value and interest, and will be highly appreciated by me."—F. E. FAIRBANKS, Fitchburg, Mass.

"I shall read it with great pleasure. It shows progress in the art, and reflects credit upon the publishers."—COL. V. M. WILCOX, President E. & H. T. Anthony & Co.

Business Notices.

WANTED.—11x14 Camera. Box 9, Claverack, N. Y.

WANTED.—A good 5x7 Camera Give make, price, condition and accessories. Address
WILLIAM BUCHOLZ, JR.,
Clarksville, Iowa.

FOR SALE.—After twenty years' successful business I have decided to retire, and offer my gallery at a bargain.
W. H. OWEN, Scranton, Pa.

PHOTOGRAPHIC BROKERAGE.—Established especially to furnish carefully selected outfits of any make or grade to those living at a distance. Address
C. M. BROCKWAY, 33 Worth St., New York.

TO RENT.—Photograph gallery in Pittsfield, Mass., in a new building; best location in city; steam heat. Inquire
M. ENGLAND, Pittsfield, Mass.

FOR SALE.—Exchange or trade, a first-class No. 6 Steinheil Photo Lens, as good as new, for a Sciopticon, Stereopticon, Electric Motor, or other Optical or Electric instruments. Original cost, $100. Address
J. F. GROSSKLAUS,
Navarre, O.

FOR SALE.—Photographic Printing establishment, equipped with everything necessary for carrying on a large business. Good-will of business of six years' standing included. Address H. G. PEABODY,
122 Boylston St., Boston, Mass.

FOR SALE.—I am going to quit the business at once. Having decided to devote the balance of my time to fruit growing, I now offer my mammoth Art Studio for sale at a price that will satisfy any one who means business, or will investigate. It is no played-out concern with old traps—not by any means. This studio is doing a fine business. Best location in the city, with a population of nearly 40,000, and growing rapidly. The Studio is all on second floor, good entrance, large operating room, with good top and side light.

This is a fine opportunity for some one. Come and see for yourself.

Yours truly,
LON BLACKBURN,
Youngstown, O.

FOR SALE.—One No 2 Kodak, loaded; cost $32.50; will sell for $22.50. One 8x10 Rochester Universal Camera, double swing, with three double perfection plate holders, carrying case, and Albion Tripod. Cost $51.70; sell for $38.80. In fine condition.
H. L. IDE, Springfield, Ill.

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PHOTOGRAPHERS' LIQUID OPAQUE,
50 Cents Per Bottle,
Is the best medium for blocking out backgrounds or skies, and to cover large and small imperfections in the negative.

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LIQUID INDIA INK,
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For marking or numbering negatives, for drawing on matt surface print, and for all purposes where India ink is used.
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L. C. BENNETT, Mercantile Photographer,
69 Centre Street, New York,
for a copy. Developing and printing for amateurs and the trade. Lantern-Slides from your own negatives. Write for prices.

"THE PHOTOGRAPHERS' BOOK OF PRACTICAL FORMULÆ."—In order to make way for the SECOND EDITION of this popular book we make the following prices on those now in stock: Paper covers, 30 cents each; cloth, 60 cents each. Never before has a book of such great value been offered for so little money.
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TO REDUCE STOCK.—We offer 8 x 10 Leclair Lenses with Iris Diaphragms, for $22.50. Send for catalogue.
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A SURE WAY TO PREVENT BLISTERS.—Use Haworth's Sensitized Paper. It won't blister. Spalding has it, so have Obrig Camera Co., and Z. T. Benson.
JOHN HAWORTH, Manufacturer, Phila.

USE EIKONOGEN DEVELOPER. The finest for Aristo Negatives. The finest for Lantern-Slides.
GEORGE MURPHY, No. 2 Bond Street, New York.

LANGILL. 10 East 14th Street, makes all kinds of outdoor negatives. Portrait photographers will do well to consult him when such is required. First prize for Architectural photographs, P. A. of A.

FOR SALE—No. 4 Folding Kodak entirely new, seal never broken. Will sell for $39. Address
PERRY, care of PHOTOGRAPHIC TIMES.

RETOUCHERS! Try "Pearl" Retouching Leads. 15 cents each.
BUCHANAN BROMLEY & CO., Philadelphia.

DO YOU WANT A LENS? Send for Catalogue.
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THE finest-fitted Dark-Rooms in the United States are open for the accommodation of Amateurs, at 122 W. 36th Street. DARLING, Photographer.

BARGAINS IN BACKGROUNDS.
Send for Special List.
GEORGE MURPHY, 2 Bond St., New York.

BARGAINS.—A Berthiot or Goertz Instantaneous Lens, Iris Diaphragm for 4 x 5 Detective Camera.
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No. 2 Bond St., New York.

NOW READY, MORAN'S BARGAIN LIST No. 38, fourteen pages. Look out for it. Send your address and secure a copy. R. H. MORAN,
396 Broome Street, New York.

GREAT BARGAIN—I have the following Dallmeyer Lenses, brought over by me, perfectly new, never been used: One 6x5 Rapid Rectilinear, $45; one 6½x8½ Rapid Rectilinear, $57.50; one 8x10 Rapid Rectilinear, $90; one No. 4 D Pat. Port. and Group, $111. Will sell one or more of the Lenses at 20 per cent. off cash. Enquire of The Scovill & Adams Company for "Jones" Lenses.

10 CENTS per square foot will buy elegant BACKGROUNDS. Send for illustrated list.
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WANTED.—Choice stereoscopic negatives from all parts of the world. Address F. F. BRAILLARD, JR.,
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THE PLATINOTYPE.
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Photographers can increase their business during the holidays by advocating the Platinotype.
Send 30 cents for a specimen print, portrait or landscape, on our new heavy India Tint Mounts.
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S. P. C. EIKOQUINOL DEVELOPER.—This "ne plus ultra" developer for timed and instantaneous exposures, lantern slides and all other kinds of transparencies, photo-mechanical work and bromide paper prints is now in stock and for sale at 35 cents per bottle of 8 ounces. No other developer is now used by the members of Chautauqua School of Photography; no other has attained to equally fine results.
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(ONCE MORE.)

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"I am very much pleased with the Christmas number of THE TIMES, particularly on account of the photographs of the authors which it contains."—E. H. PAYNE.

A Perfect Gem.—"The Christmas number of THE PHOTOGRAPHIC TIMES is a perfect gem, and is interesting not only to the active followers of amateur photography, but to all lovers of the artistic side of nature as well."—*The Week's Sport.*

The Christmas Number of THE PHOTOGRAPHIC TIMES presents a large array of entertaining reading devoted to the noble art of photography in all its departments from the pens of the most competent masters. The text is elegantly illustrated throughout. To lovers of art this number will be unusually interesting.—*Davenport Democrat.*

Christmas is beginning to affect the publishers of the photographic journals. The Christmas number of THE PHOTOGRAPHIC TIMES AND AMERICAN PHOTOGRAPHER is a handsome issue. There are four full-page pictures of excellent quality. The frontispiece is a pretty subject, designed by Miss Clarkson, entitled "Merry Christmas." There are also six other illustrations, in addition to a dozen portraits or eminent photographers. The amount of reading matter is also doubled, and is of a more than usually interesting nature.—*New York Times.*

The Christmas Number of THE PHOTOGRAPHIC TIMES is a handsome publication. It contains articles by a number of professional and amateur writers upon photographic subjects, and has several fine illustrations. The Christmas frontispiece is a reproduction of a photo by Miss E. V. Clarkson, a member of the New York Society of Amateur Photographers. The composition is the figure of a woman clothed in a simple white robe. The figure holds aloft a branch of holly, and athwart the figure is a streamer with the legend, "Merry Christmas." The picture was exhibited as a lantern slide at a recent exhibition in the society's room. Miss Clarkson is an enthusiastic amateur, and has done some admirable work.—*N. Y. Recorder.*

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That which is true of positives on paper is equally true of positives on glass, window-transparencies and lantern-slides. Where are such pleasurable results to be obtained at fair prices?

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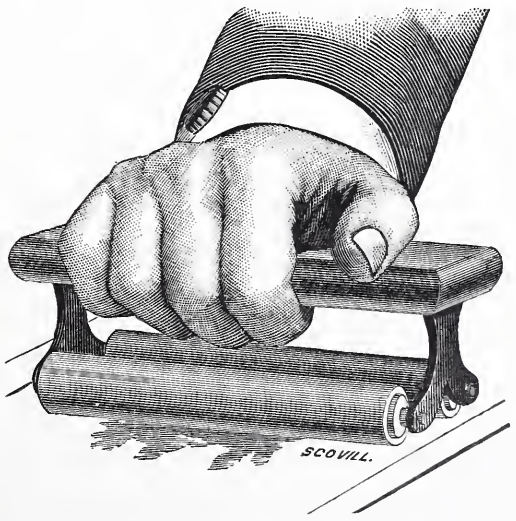
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Heat the water to 150 deg. F.; dissolve first the sulphite of sodium, then the para-amidophenol, and finally the carbonate of sodium; filter, and keep in well-stoppered bottles. With ordinary caution this solution will keep indefinitely.
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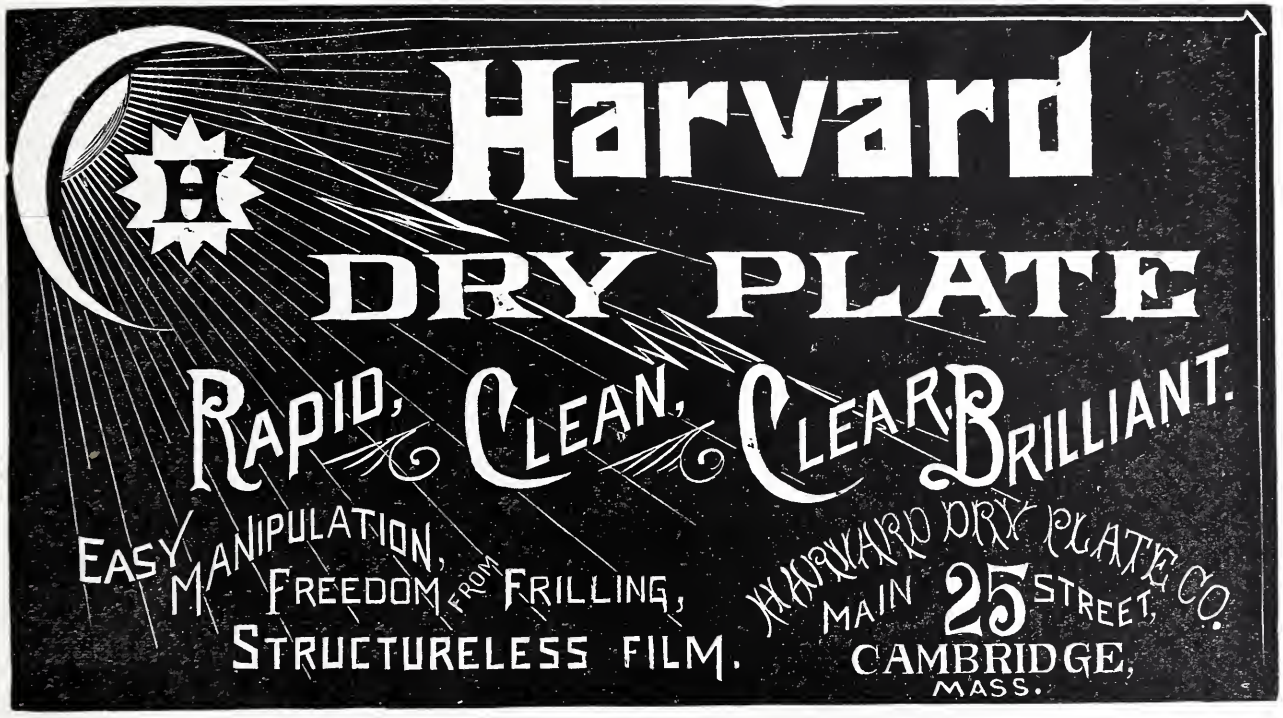
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Make Window Transparencies, always an acceptable Present, and especially so in the Holiday Season, using

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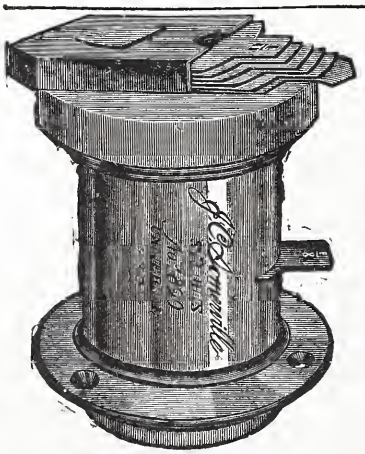
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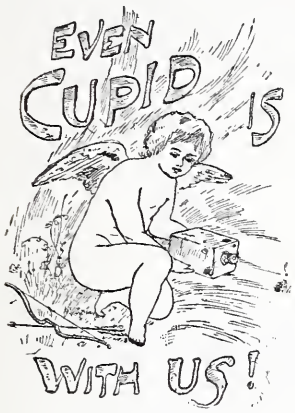
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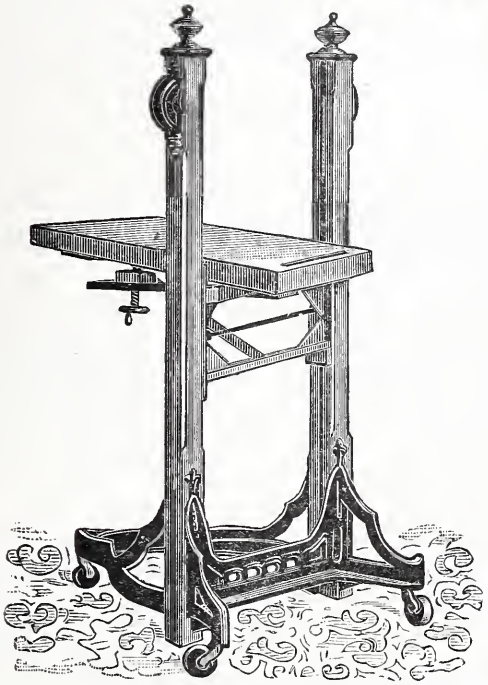


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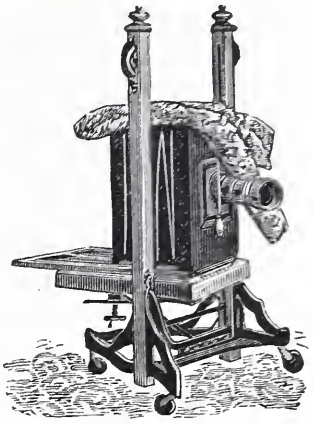
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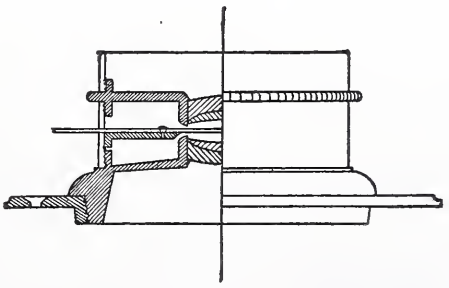
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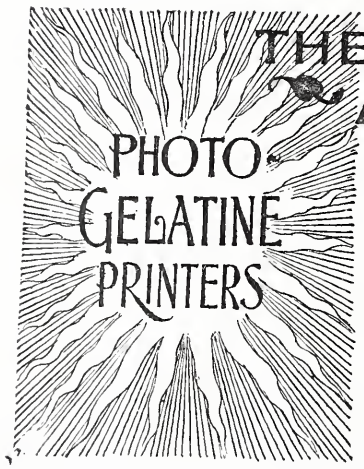
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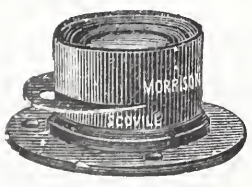
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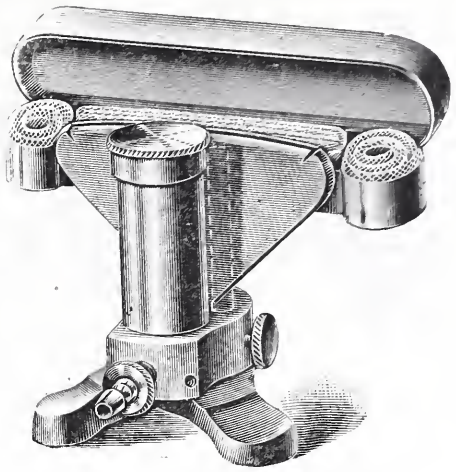
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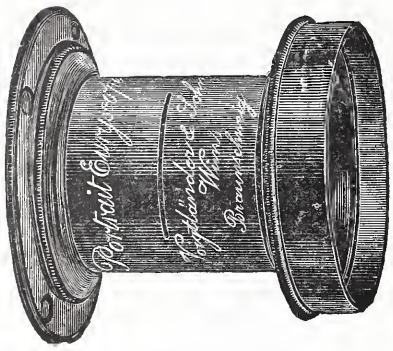
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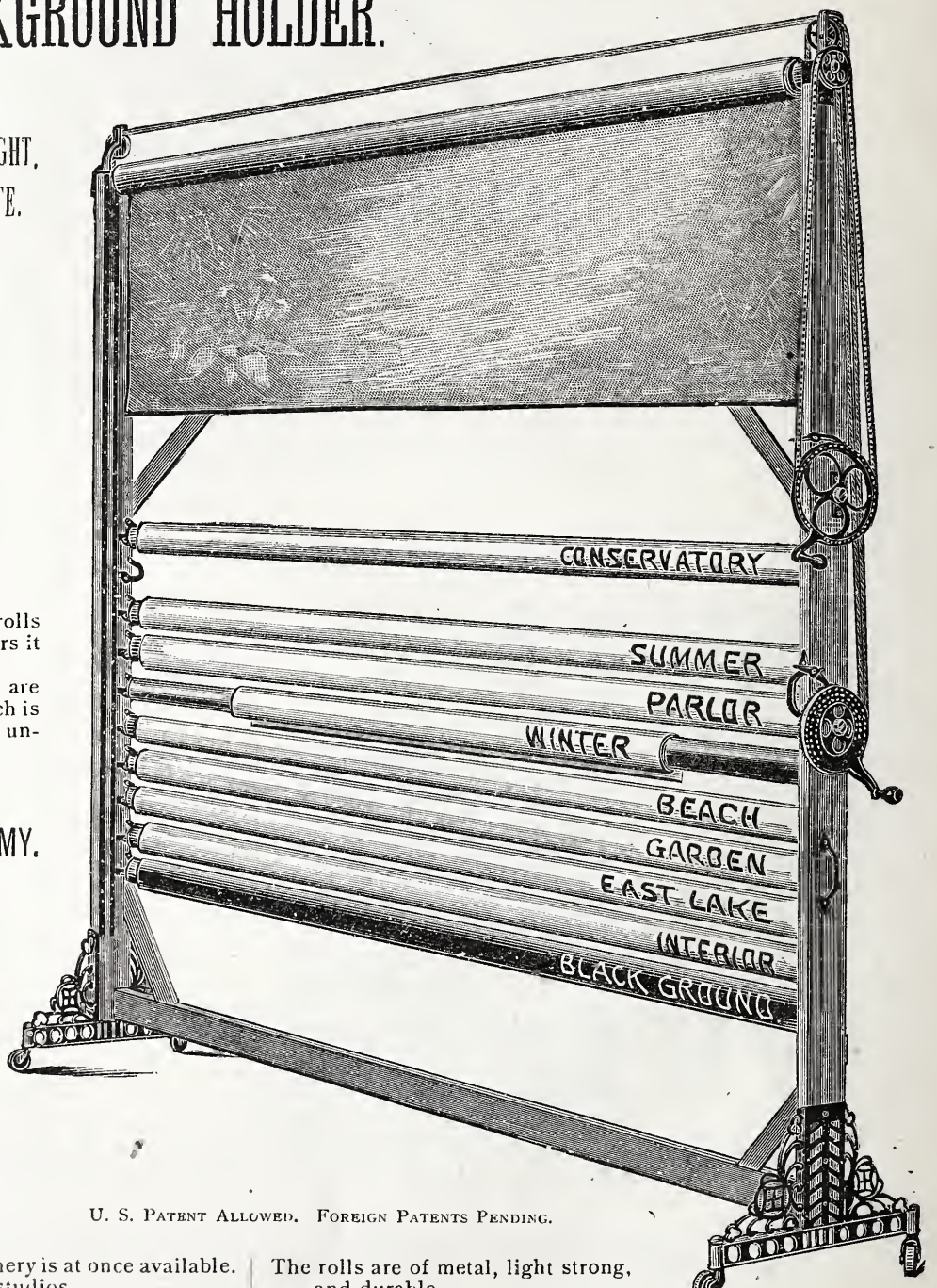
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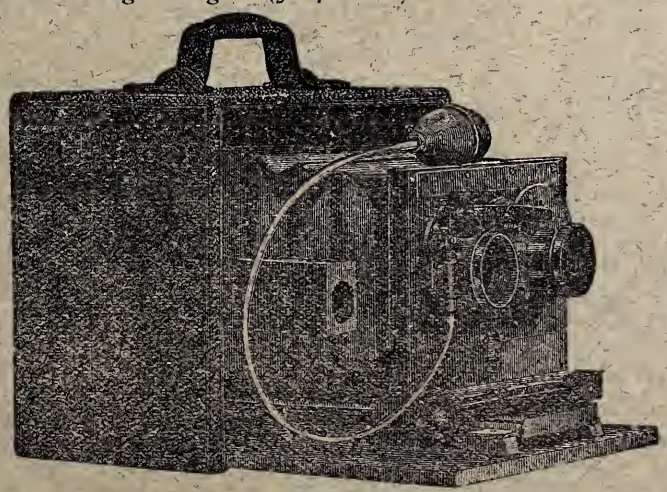


in connection with the stereoscope, *for it is only by that means that the idea of perspective and solidity can be conveyed.* We can only assign as the reason the present almost universal use of hand cameras, and that none of them have, up to this time, been arranged for stereoscopic pictures.

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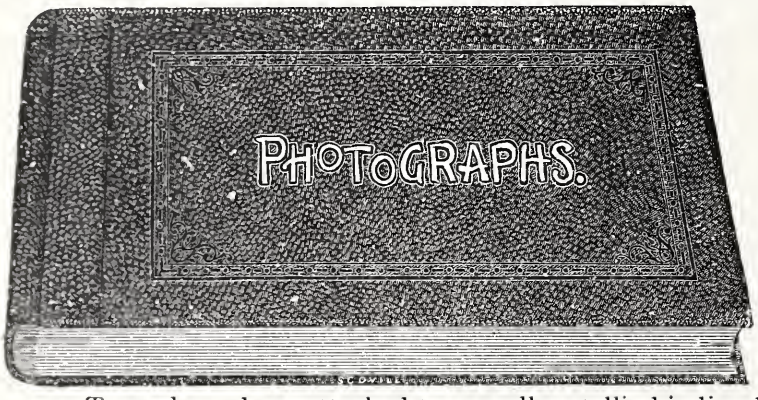
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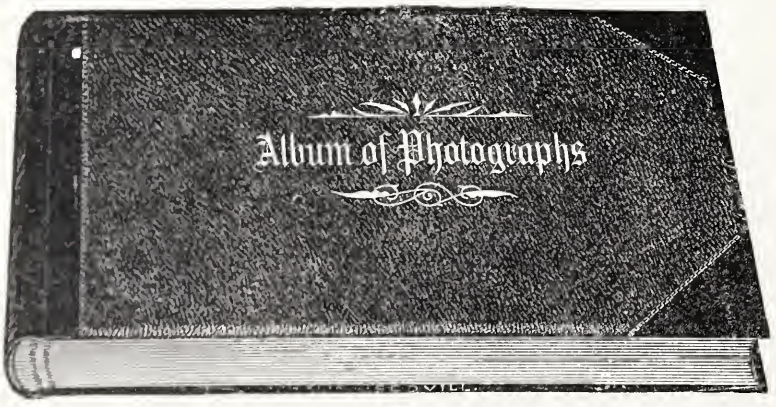
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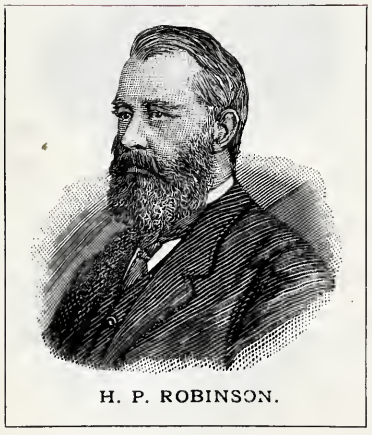
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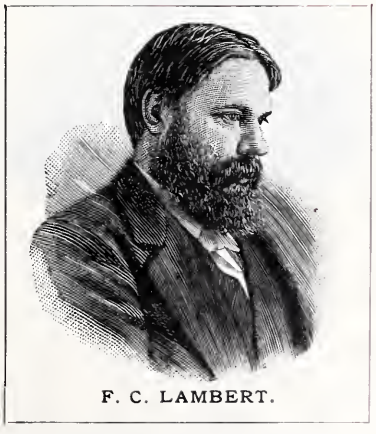
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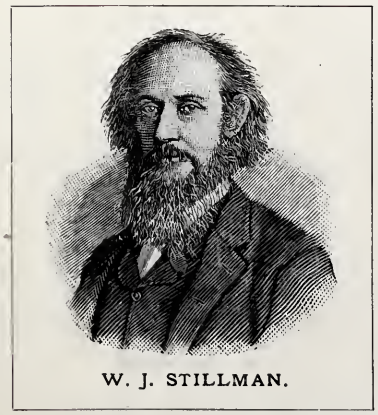
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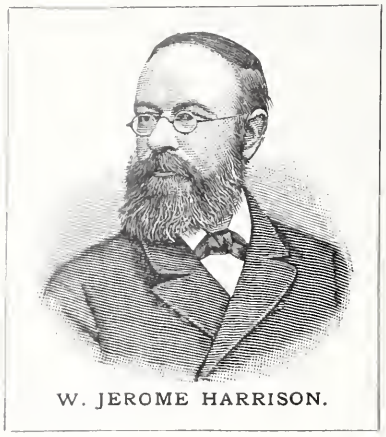


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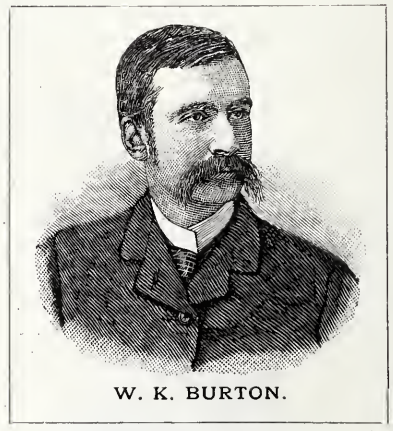
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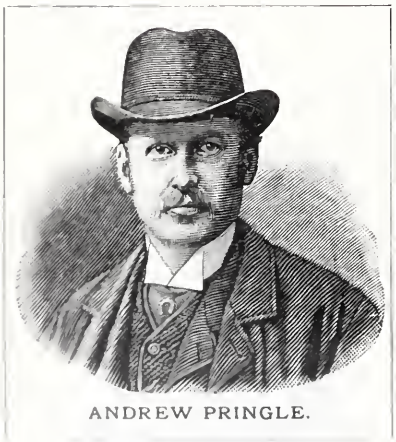
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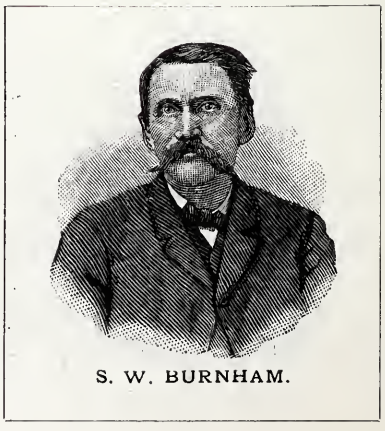
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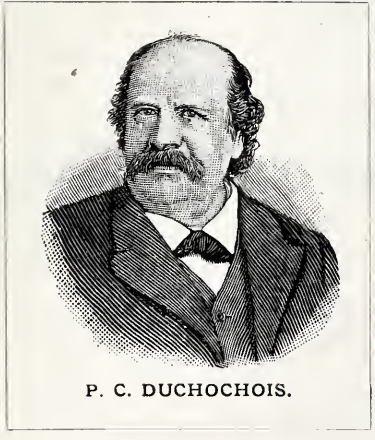
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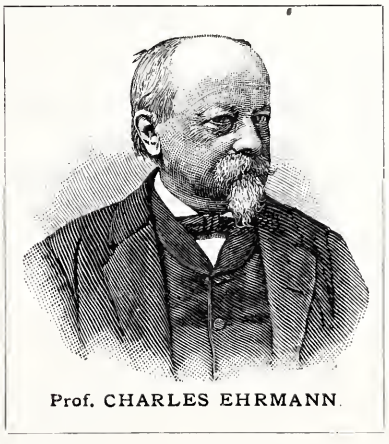


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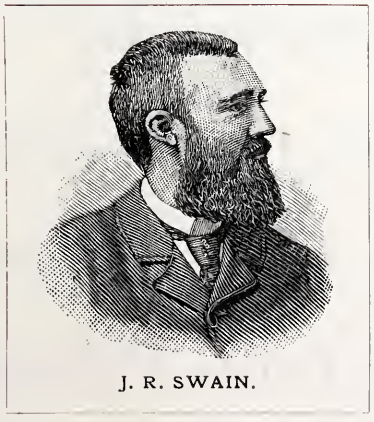
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SISTERS.

THE PHOTOGRAPHIC TIMES.

VOL. XXII. FRIDAY, JANUARY 29, 1892. No. 541.

"THE SISTERS."

OUR pretty child picture this week is from a negative by F. Gutekunst, of Philadelphia, who also makes the excellent reproduction. "The children were playing about the skylight," writes Mr. Gutekunst, "and had gotten into many picturesque positions, but we only succeeded in getting a good negative of this one, as the most striking positions were gone before we could get a 'shot' at them." The position here depicted is a very pretty one, and illustrates the title which Mr. Gutekunst suggests, "First Studies."

PARA-AMIDOPHENOL AGAIN.

THE complaints occasionally made on the efficacy of para-amidophenol developers, the little intensity obtained necessitating an after-developing with hydrochinon, are no doubt based on facts, but that is not, nevertheless, a proof against the capabilities of the new developing agent. If one compound of the substance does not produce the desired results, others will. A good operator can always prepare developers to suit any case which presents itself.

The formula before given in these columns, but slightly modified, we still recommend as the best of every one we have experimented with.

Dissolve 100 grains of para-amidophenol in 16 ounces of warm distilled water, then add by small quantities at a time, and constantly stirring, 3 ounces of crystallized sulphite of sodium, also dissolved in 16 ounces of warm distilled water, and finally dissolve in the mixture 1½ pound of carbonate of potassium. No para-amidophenol will be deposited in employing these proportions, provided the temperature does not fall below 65 deg. Fahr. Two drachms of this compound to 6 drachms of water constitutes a good developer for instantaneous work. Should the intensity of the image be deficient in employing this proportion, then after the details are well out the strength of the developing solution may be somewhat increased. The advantage of our developer over Rodinal is that it is not at all necessary to have recourse to an after-intensification with hydrochinon.

Para-amidophenol hydrochlorate is difficult to handle in many respects. Its behavior with the chemicals used for compounding the developing solution is not the same as that which occurs with other reducing agents. Let us see, for example, what happens when to its solution is added sulphite of sodium in the crystallized or anhydrous state. When a tolerably concentrated solution of para-amidophenol is made with the addition of commercial sulphite, a precipitate is thrown down, which, without any doubt, is due to the carbonate contaminating the sulphite of sodium, sometimes in great proportion, for with a pure product perfectly neutral no precipitate is deposited from a solution of 4 grains in 1 ounce of water. It has been said that a solution of para-amidophenol and sulphite without any alkali possesses developing properties, but our own experience speaks to the contrary, provided always the sulphite be free from carbonate.

Para-amidophenol requires proportionately larger amounts of alkali than either hydrochinon or eikonogen, and that in order to promote the solubility of the substance. Carbonate of sodium is less effective than potassium carbonate, and the caustic alkalis necessarily act with the greatest energy. Caustic ammonia is very effective, but almost invariably produces green fog.

With properly balanced solutions, and normal time of exposure, any amount of intensity is attainable. Weak solutions lead to obtain details, strong ones to produce intensity.

When metabisulphite of sodium is added to the para solution, much sulphurous acid is evolved and the solution remains clear, but its developing energy is so much reduced that it can hardly be used for instantaneous exposures, while for black and white negatives it answers quite well.

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Para-amidophenol hydrochlorate in solution with an alkali becomes slightly colored by exposure to the air, but by no means to such an extent and so rapidly as hydrochinon and eikonogen.

OUR AMATEURS.

THE *Cosmopolitan* for February contains an article on the leading American amateurs in photography, with illustrations of their most artistic works. The choice of the subjects, their treatment and distribution of light and shade are not only technically excellent, but examples of a well-cultivated artistic taste.

Amongst the best known the *Cosmopolitan* cites :

Mr. John E. Dumont, of Rochester, N. Y , who specially excels in genre pictures. This eminent amateur "took up photography in 1884, and, like many amateurs, met with many discouragements. At the end of a year he was on the point of giving it up in despair, when an acquaintance, by pointing out some of the causes of failure, induced him—very fortunately—to continue his work with the camera.

Mr. Dumont works by following the principles which guide every true artist. "When I start out to make a picture," says he, "I always give it careful study, and try to photograph it just as painter would paint it ; as I believe that photography can render art, notwithstanding all that has been written to the contrary, though I do not believe it can render high art."

Mr. Dumont was awarded a prize at every exhibition in which he took part ; among which is a gold medal from the Society of India, Calcutta, 1891, for "Listening to the Birds," a jewel.

Mrs. N. Gray Bartlett, of Chicago, practices photography since about eight years. Her favorite work is to depict the many phases of child life. Judging from "A Revery," the composition must be excellent and the subjects charming. This distinguished lady is a chemist. In Chicago, 1889, she received, besides a medal, a special prize for her prints in platinum, also a diploma at the great Vienna Salon held last spring, and "the officers of the Salon have forwarded a request for copies to be placed on permanent exhibition at the Royal Art Gallery." This is certainly a great and lasting honor, for Mrs. Bartlett has the good and not at present very common sense of not printing by the silver processes : her photographs are permanent.

Mr. Chas. L. Mitchell, M.D., member of the Photographic Society of Philadelphia, is celebrated for his landscapes. "He is one of those fortunate amateurs to whose work the knowledge of chemistry lends an additional charm." The *Cosmopolitan* gives as specimen of his landscape work two remarkably fine photo-typographs : "On the Brandywine" and "The Wayside Spring," which Marilchat and Bellel would have been proud to sign. So are also "High Noon," by Mr. C. B. Moore, and "Hesitation," a master-work in photography, by Mr. R. S. Redfield.

Mr. Henry G. Piffard, M.D., of the New York Camera Club, applies himself to medical studies by means of microphotographs. He is also a philosopher and uses the flash-light, of which he is the inventor, to depict the *miserables* of New York at home. The Chinese cafés, the opium smokers' dens, life in Mott and Mulberry streets are typic photo pictures which leave one thinking.

Mr. James L. Breese, of New York City, the author of a "Portrait of a Child," greatly admired at the last New York Exhibition, who has received so many prizes for portraiture ; Miss Emma S. Needles, of Baltimore, whose forte is figure ; Mr. George A. Nelson, of Lowell, the winner of a silver medal at the exhibitions of Philadelphia, Chicago, New York, and an international grand diploma at Vienna ; Mr. George B. Wood, of Philadelphia. Mr. Alfred Stieglitz, of the Society of Amateur Photographers of New York, whose predilection is open-air genre, winner of awards everywhere he exhibited,—London, Vienna, Berlin, Frankfort, etc. "Weary" is a fine specimen of his manner of treating a difficult subject; Mr. John C. Bullock, of Philadelphia, another winner of prizes ; Mr. Robert S. Redfield, who received twenty awards in as many exhibitions ; Miss Catherine Weed Barnes, of Albany ; Miss Sara J. Eddy, of Providence ; Mrs. Bullock, of Cincinnati, and other distinguished amateurs whose names are familiar to all, form a cluster of artist photographers which it would be difficult to find excelled.

OBITUARY.

JAMES V. ESCOTT.

DEATH is busy among the ranks of honored photographers and those intimately connected with photography.

The latest sad announcement is that James V. Escott, one of the oldest and most honored photographic merchants in this country, passed quietly away Monday, January 18th.

Mr. Escott was compelled to take to his bed five weeks ago with the grippe. Pulmonic pneumonia was afterwards developed, and on account of his advanced age the disease completely prostrated

him. Several days ago hope was given up, and soon death became only a question of a short time.

James V. Escott was born in Somersetshire, England, March 10, 1816, and was therefore seventy-six years of age. He was the son of a farmer. He acquired an excellent education, and in 1838 decided to come to the United States. He took passage in a sailing vessel bound for New Orleans. It took forty days to make the trip. Two years after Mr. Escott came to this country he arrived in Louisville. He first engaged in the boat supply business with the late Capt. Z. M. Sherley, under the firm name of the Sherley-Escott Company. The store was in the old commercial row on Water Street, above Fifth, at that time one of the largest and finest blocks in the city. The boat store was one of the first established in Louisville, and during the many years of its existence did a large business. About 1850 the firm was dissolved, and Mr. Escott, being a man of fine artistic tastes, formed a partnership with F. Hegan and engaged in the business which he so successfully prosecuted up to his death. His store was then on Main Street. In 1863 Mr. Escott went into the art business alone. Later he took his sons into partnership, and the firm became J. V. Escott & Sons. being incorporated under that name in 1878. During the last twelve or fifteen years he had occupied the store at 521 Fourth Street, but was driven out by the fire which destroyed the Kaufman, Straus & Co. building. The fire at the time did Escott & Sons serious damage. It was an illustration of the confidence reposed in Mr. Escott that the insurance companies settled with him at once upon his own statement of the loss. After the fire the firm reopened on Market Street. Although Mr. Escott had not been actively engaged in business for some years, he remained President of the corporation which he founded.

EDITORIAL NOTES.

We are asked to state what in our opinion is the best toning bath for albumen paper prints. We would be very embarrassed to decide it. Every one is good if employed when colorless, and if one knows how to operate; the choice depends on the tone desired, and still all the gold solutions give nearly the same result. We often compound it as per the following formula. The solution keeps well, clears the whites if they are slightly tinted, and prevents that blue-black inky coloration so objectionable no matter which is the subject:

Gold terchloride	2 grains
Lime chloride	5 grains
Sodium acetate, fused	40 grains
Water	1 pint

The gold terchloride should be neutralized with chalk before adding the other chemicals to the solution.

Mr. Hermann E. Guenther gives in the *Photo News* the following formulas to prepare the para-amidophenol developer in two solutions:

a.	Para-amidophenol hydrochlorate	1
	Sodium sulphite	4
	Water	100
b.	Sodium sulphite	4
	Caustic soda	3
	Water	100

For instantaneous exposure equal volumes.

For time exposure the mixture should be diluted from 2 to 3 times its bulk of water.

The advantage—the only one over the ready for use compound—is that the separate solutions keep well, while the mixture is always undergoing alteration and becomes useless in a certain period.

It has been stated that para-amidophenol allows of shortening the exposure time. This is an error which may lead many operators to failures. None of the new developers possesses a greater, if equal, reducing-developing property than pyrogallol, which by itself is capable to develop the latent image provided the exposure time be sufficient. The energy of hydroquinon, eikonogen and para-amidophenol as *developing* agent wholly depends on the percentage of alkali entering into the composition of their solution, and it is so great with para-amidophenol that it is dangerous to increase the dose beyond that generally employed, 2½ per cent. of potassium hydrate, without injuring the gelatine film. With pyrogallol it is impossible to use, for example, as much as one-half per cent of the same alkali, or its equivalents of sodium hydrate, without giving rise to a general reduction (fogging), while the same dose employed with every one of the other reagents is small.

We advise one to give full exposure, and to regulate the development by varying the strength, or energy, of the developing solution.

The stereoscope, that marvelous instrument devised by Brewster, comes again into favor, not amongst the public, but amongst the amateur photographers. That is right. Nothing so charming as those pictures, which give the sensation of relief and transport us, as it were, to the country they

represent, and give us, while we, in the cold evenings of winter and weary hours of life, are seated by the chimney corner, the distraction and pleasure of making over a journey we made in our youth.

We have been an enthusiastic admirer of the stereoscope. In 1852-53 we made stereo-transparencies by the albumen process, the only one then at our disposal, on plate 18 x 24 centimetres, which, seen through a stereoscope, made *ad hoc* by Duboscq, and fixed at the window, produced most realistic and magnificent effects.

Such large instruments and views are expensive. We doubt that there will be a sale for them. But these considerations, capital for the professional, the amateur does not know, so we hope ere long to have the pleasure of seeing exhibited at the camera and other clubs views still more realistic, for they will be animated by figures which in the old time it was for us impossible to photograph, having to expose during three, ten, or twenty minutes.

IT is said that the addition of a small quantity of lime chloride (bleaching powder) to the developer prevents yellow fog. It is worth trying, especially with an old hydroquinone developer.

ANOTHER startling invention in the lantern line is promised by a London firm of manufacturers, says the *Optical Magic Lantern Journal.* A hundred slides are placed in a box at the lantern. These are automatically brought into position in the lantern, and then passed into another box, all by the mere pressure of an electric button by the lecturer. This arrangement will enable a lecturer to operate his own lantern, no matter how far he will be from it, and insure the slides to be revealed upon the screen exactly at the time required.

WE caution the reader to beware of under-exposures when photographing winter scenes. They are difficult subjects on account of the contrasts and the powerful light reflected by the snow. Lately we have taken views in the park by an overcast gray sky, the best for that kind of work, and for experimenting we have exposed a plate during one-half of one second and others three seconds. The picture on the plate having been exposed during the short period is somewhat harsh, and anyhow deficient in fine details, while the other pictures are good.

We took the precaution of backing the plates to avoid halation, which we always do for out-door work, and we conducted the development with pyro to first bring out the details, then the intensity. Of course the development is very slow, but it should not be forced, else the gradation in the whites will be lost.

THE Société des Jeunes Amateurs Photographers, 15 Boulevard, St. Germain, Paris, and the Photo-club Rouenais (at Rouen) are the latest new French organizations.

THE portrait of Daguerre, painted by Charpentier, a copy of which appeared in the "Annual" for 1891, has recently been presented to the the French Photographic Society by the family of the artist.

The same society has received the gift of one thousand francs in memory of M. Peligot, for fourteen years its president, the income to provide a medal to be awarded every two years to such person as the society shall deem worthy, for service rendered to photography. This is a hint for our wealthy amateurs to act upon.

THE November number of the *Bulletin de la Société Française de Photographie* has a résumé of the work accomplished at the international photographic congress at Brussels in August last, from the pen of General Sebert.

DEVELOPING AND TONING BROMIDE PAPER PRINTS.

THE bromide paper proofs and the diapositives on gelatine plates obtained by development with ferrous oxalate leave but little to be desired ; no detail is lost, the intensity is good, the tone satisfactory and can be easily changed into a warm red, brown or black tone by most, if not all, the toning solutions employed in the other processes of photography. Indeed, we do not think that this developing agent could be replaced by another equally as good for the purpose in question. But it has a drawback which for bromide paper prints is quite serious : it is difficult, unless by prolonged washing, to entirely free the proofs from the salt of iron, which renders the toning with uranium objectionable, or at least a hazardous operation. Hydroquinone gives good results, but it is liable to produce yellow fog (so-called), and this specially the solution is employed to develop several proofs in succession. Old hydroquinon solutions surely produce this fog, so difficult to remove when it is of a certain intensity. We do not recommend it, although there are many operators who work with it quite successfully and obtain a fair percentage of faultless proofs.

As we have had before occasion to mention, eikonogen is, so far, the best substitute for ferrous oxalate. As to para-amidophenol we refrain at present to give our opinion on its value as a developer for prints on bromide paper. Our experiments are too recent, not numerous enough to give any formula and advice. We can say, however, that we have obtained excellent paper prints and diapositives.

To develop the positive image, we use the following eikonogen one-solution compound. It is very energetic. It can be employed for negatives :

Eikonogen	15
Sodium sulphide	60
Water, hot	480
When all is dissolved add	
Potassium carbonate	20

The strength of the developer necessarily depends on the intensity and character of the negative image. The exposure has, of course, to be taken into account, but it is not so great an important factor as in the negative process. If the cliché is of a good intensity, rather too intense, the above developing solution can be employed full of strength ; if it is weak, uniform, the solution should be diluted ; an equal volume of water gives the maximum of dilution which is generally allowable.

As a rule the development must proceed with a certain rapidity and the intensity be soon obtained. Slow development seldom produces good positive pictures, and is the cause of many failures such as fog, dirty whites, etc.

No remedy for short exposures.

A little over-exposure is not objectionable ; it is even desirable in order to promote rapid development. It is true that it leads to obtain gray-blacks and tinted whites, but in the toning process the blacks always intensify more in proportion to the details when gold or platinum is employed as the toning agent, and the lights are somewhat bleached.

Over-exposure may be remedied as in the negative developing process, but potassium bromide should be used in small doses, as it tends to tinge the tone green ; if it is replaced by ammonium chloride the tone is warmer.

Bromide paper prints can be toned by any of the compounds employed for the same purpose in the albumen printing-out process. Gold gives purple or blue-black tone. We use the acetate or the sulphocyanate bath, unless we want to bleach the whites, when we use the lime chloride bath of Legray. The stronger in gold are these baths the more they tend to give blue tones. The reason of this has been pointed out by Faraday, who observed that the purple of Cassius was so much the more brownish as the precipitation was slower, and tended to a purple-blue when gold was rapidly deposited.

Black tones are obtained by platinous and palladious chloride. The bath of Mr. Lionel Clark answers well :

LEGRAY'S FORMULA.

Auric chloride	1
Chloride of lime, com	5 to 6
Water	960

L. CLARK'S FORMULA.

Potassic chloroplatinite or palladious chloride	1
Nitric acid	1 to 1½
Water	960

Black tones can also be obtained by bleaching the image with mercuric chloride, and after washing thoroughly, treating it by a strong solution of sodium sulphite.

The proofs are toned to a variety of brown by uranium (uranyl) ferrocyanate. A good formula is given by the Eastman Company. The following is due to Mr. Fry. It works also very well:

A —Uranic nitrate	2
Acetic acid	24
Water	480
B.—Potassic ferricyanate	2
Acetic acid	24
Water	480

These two solutions keep well; their mixture only for a few hours. For use, equal volumes.

The proofs should have been fixed and dried before being treated by the toning solution. Of course it is of the utmost importance that all traces of thiosulphate (hyposulphite) be eliminated in order to avoid stains. For this purpose oxygenated water (peroxide of hydrogen) is now much employed, not only in the process we are describing, but in every other one, negative or positive. The peroxide of hydrogen of commerce is sold at about 18 volumes; it should be diluted with from 30 to 40 parts of water. We add to the solution a few drops of ammonia.

To tone, the proof is immersed in water for three or four minutes, then laid on a glass plate and gently squeezed into perfect contact. Then the uranium toning mixture is rapidly spread over with a large flat brush, and the action allowed to proceed until the desired effect is produced, taking care, however, not to carry it too far, as the whites may be tinged red.

When the desired tone is reached the picture should be rapidly washed in pure water often renewed. Here we must remark, and indeed it is very important, that the color deposit is soluble;

hence over-toning can be corrected, and in fact any shade of the uranic ferrocyanate may be obtained by prolonged washings. The color can even be rapidly and entirely dissolved by a solution of sodium carbonate and the proofs again toned over by any process.

The proofs should be blotted surface-dry before hanging them up to dry, in order to avoid stains. They should also be allowed to dry in the dark-room, as light darkens the color, and this more rapidly when the paper is damp.

P. C. Duchochois.

THE CHEMISTRY OF PHOTOGRAPHY.

(*Continued from page* 42.)

CHAPTER I.—*Continued.*

EMULSION PHOTOGRAPHY.

An "emulsion" is the name applied to a liquid which contains innumerable particles of some solid substance, the particles being so small and so nearly of the same specific gravity as the liquid, that they remain suspended in the latter for a longer or shorter period of time. Thus milk is an emulsion. It consists of countless particles of fat (cream) suspended in a watery fluid.

As early as 1853 the French worker, Gandin, sought to prepare a sensitive collodion or *photogene*, which could be simply poured on to plates or paper, and then dried. The cause of his failure—and that of some later experimenters—consisted in the use of *iodide* of silver. When this substance is shaken up in collodion, its particles clot together and subside to the bottom.

This difficulty was overcome in 1864 by B. J. Sayce and W. B. Bolton. They formed silver *bromide* in the collodion, and found that they had got a good "emulsion." For the particles of silver bromide remain suspended in the gelatine very much as the fat globules remain suspended in milk.

Chemistry of Collodion Emulsion Making.—To make a satisfactory collodion emulsion for negative work, it is necessary to first dissolve a soluble bromide in alcohol and add it to some collodion. Silver nitrate is also dissolved in alcohol and added gradually to the bromized collodion, which must be kept well agitated. Supposing zinc bromide to have been employed, the following chemical reaction then takes place:

$2AgNO_3$	+	$ZnBr_2$	=	$2AgBr$	+	$Zn(NO_3)_2$
Silver Nitrate	*and*	Zinc Bromide	*produce*	Silver Bromide	*and*	Zinc Nitrate.

This equation would show that the silver nitrate and the zinc bromide should be mixed together in the proportion of 340 parts by weight of the former to 225 parts of the latter. In practice, however, a slight excess of the silver nitrate is always employed.

The zinc nitrate which is formed must be removed from the emulsion, and this is done by washing the emulsion well with water, either before coating the plates, or after. It is found to be impossible to wash away *all* the excess of silver nitrate. Some silver nitrate always remains clinging to the molecules of silver bromide, and this *acts as a sensitizer*. Carey Lea showed, in 1870, that it was useful to add a few drops of nitric acid to the emulsion, in order to prevent fog. It was usual to flow over the coated and washed plate a solution of tannin. This did not increase the sensitiveness, but it was useful in the other ways we have pointed out.

"Ripening" of Collodion Emulsion.—After the ingredients of a collodion emulsion had been well shaken up together, it was found to be a good plan to leave the emulsion for twenty-four hours to "ripen," as it was called. This ripening consists in an aggregation of the molecules of silver bromide, so as to form particles of the size most sensitive to light.

The collodion emulsion dry-plate process was much used for landscape work, and by travellers, between 1870 and 1880. It was slow—much slower than wet collodion—but good work was done with it.

Chemistry of Gelatine Emulsion-Making.—Several early workers attempted to use gelatine, instead of collodion, in the preparation of a surface sensitive to light. The first success in this direction was due to Dr. R. L. Maddox, in 1871; he, however, had not time to work out the process so that it should be a commercial success. Burgess, in 1873, and Kennett during the years 1876–77, tried hard to introduce gelatine emulsion dry-plates to the English market; but without success. Then came the discoveries of Bennett (1878), and of Mansfield (1879), showing that extraordinary sensitiveness was conferred upon a gelatine emulsion when it was carefully *heated*. The increase in rapidity "did the trick;" and gelatine displaced collodion in 1879–80.

The following short outline of the method by which several millions of gelatine dry-plates are now prepared annually will enable us to explain the chemical and physical changes which take place during this manufacture:

A. In eight ounces of distilled water soak 40 grains of gelatine; add 180 grains of ammonium

bromide and 10 grains of potassium iodide. Heat gently till all is dissolved.

B. In one ounce of distilled water dissolve 100 grains of silver nitrate; to this add strong ammonia, drop by drop. till the precipitate at first formed just disappears.

C. In the dark-room, warm the solution *A* to 170 deg. F.; and add to it, by degrees, 165 grains of silver nitrate When this has dissolved, add solution *B*. Shake well, and stew for two hours at a temperature of 170 deg. F.

D. Cool the emulsion down to 80 deg. F., and add 300 grains of hard gelatine. Heat the whole to 100 deg. F., and mix well. Now place the vessel containing the emulsion in cold water, when it will quickly "set" to a stiff jelly.

E. Wash the emulsion well, by squeezing it through coarse canvas into several changes of water.

F. Add 1 ounce of alcohol to the emulsion; dissolve it by gentle heat; make the total quantity up to 10 ounces by adding distilled water. Lastly filter the emulsion by squeezing it through swansdown calico; and it is ready for coating the plates. Such an emulsion will possess extremely high sensitiveness to light.

The only certain chemical reactions which take place in making a gelatine emulsion are those between the silver nitrate and the soluble bromide and iodide employed.

$AgNO_3$ Silver Nitrate	+ *and*	NH_4Br Ammonium Bromide	= *produce*	AgBr Silver Bromide	+ *and*	NH_4NO_3 Ammonium Nitrate.
$AgNO_3$ Silver Nitrate	+ *and*	KI Potassium Iodide	= *produce*	AgI Silver Iodide	+ *and*	KNO_3 Potassium Nitrate.

Sometimes the potassium iodide is omitted; but its use is generally considered to give additional clearness to the plates.

The object of *washing* the emulsion is to get rid of the extraneous salts—the nitrates of ammonium and potassium.

By heating the emulsion, and by the addition of *ammonia*, we cause the molecules of silver bromide to aggregate together until they form particles averaging the eight-thousandth part of an inch in diameter. It is when they are of this size that silver bromide particles are most sensitive to light.

The proof that silver bromide could exist in several distinct molecular forms, each differing in sensitiveness to light, was first published by the Belgian chemist, Stas, in 1874. Ten years later, M. de Pitteurs studied the same subject, specially from a photographic point of view; and the results of his investigations are shown in the following table:

TABLE SHOWING THE EIGHT MODIFICATIONS, OR ALLOTROPIC FORMS OF SILVER BROMIDE.

By Transmitted Light		By Reflected Light.	Occurrence.
Semi-transparent.	Orange.	Slate-blue.	In fresh collodion emulsion.
		Bluish-white	Older bromide of silver in collodion wet plates.
	Reddish orange.	Bluish-white.	In very sensitive wet collodion plates.
		Yellowish-white.	In very old bromide of silver in collodion.
Almost opaque.	Violet-blue.	Yellowish-white.	In very sensitive collodion emulsion.
		Greenish-yellow.	Bromide of silver in gelatine; sensitiveness medium.
		Green or violet-green.	Very sensitive gelatine emulsion.
	Blue.	Indistinct.	Slightly sensitive silver bromide in collodion, yielding indistinct pictures Affected by red end of spectrum.

It is either the sixth or the seventh of these forms of silver bromide which the modern plate-maker aims at securing in his sensitive dry-plates; and he is guided to some extent during the preparation of the emulsion by the color of a drop of the liquid emulsion when placed on a glass plate. The *cause* of the growth in size of the molecules of silver bromide—and of the consequent greater sensitiveness to light—is the fact that part of the silver bromide is dissolved by the hot liquid in which it is formed, and by the ammonia which is present. This dissolved silver is afterwards deposited upon the undissolved particles, causing them to increase in size from their original diameter (which is about the one twenty-thousandth part of an inch) to the one eight-thousandth part of an inch. The extremely small particles transmit ruby light; the larger ones blue light.

It is not at all a difficult task to prepare a good gelatine emulsion. To the amateur plate-maker the difficulties lie rather in the subsequent work of coating glass plates evenly with the said emulsion, and of then drying these plates in a perfectly dark room, free from dust, and at a certain rate.

Gelatine as a Sensitizer.—In our modern gelatine dry-plates it is found to be quite unnecessary (harmful, in fact) to have any excess of nitrate of silver present to act as a sensitizer; neither is it requisite to coat the plates with tannin, or any

other preservative. The fact is that gelatine is itself able to act as a "sensitizer," and to combine with the small quantities of bromine and of iodine which are given off when sunlight acts upon such a plate. This is the cause of the great superiority in sensitiveness of gelatine dry-plates over collodion or albumen. The gelatine is (comparatively) a powerful sensitizer. The German chemist, Knop, found* that gelatine could combine with nearly one-third its weight of bromine, forming a yellowish insoluble bromo-gelatin.

Celluloid as a Support for Gelatine Emulsion.—In 1856 a Birmingham chemist named Parkes succeeded in converting a variety of gun-cotton into a horny substance which was named "celluloid." In 1888 certain American manufacturers prepared a *transparent* kind of celluloid, and this is now largely used by professional plate makers in lieu of glass as a support for the gelatine emulsion. The Eastman Company use celluloid which is only the four-hundredth part of an inch in thickness. This is quite flexible, and, after coating, it is wound into rolls, which are used with a special piece of apparatus called a "roll-holder," which is fitted to the back of the camera. Other makers use a stouter kind of celluloid, which lies in the dark-slide just like a sheet of glass. The advantages of celluloid over glass are, of course, its greater lightness and non-liability to breakage.

W. Jerome Harrison.

(*To be continued.*)

SHALL WE RETOUCH NEGATIVES BEFORE PRINTING PROOFS.

A WRITER on photographic subjects not long ago suggested that the proofs be printed by a good printer, instead of leaving it for cheaper help to do; and very good advice it was, too.

It is important that the proof present as good appearance as possible, because the great majority cannot realize what changes can be made in finishing the pictures.

Now, when a skillful photographer looks at a negative with a view to finishing prints from it, he can see in his mind's eye how they will look. He sees, perhaps, that the negative is too soft or flat, too little contrast, and knows that with careful intensification it will make a brilliant print. He may see a frown which can be removed by a few careful strokes of the pencil, a few stray locks of hair which might condemn the picture, perhaps, as frequently occurs. There are a great many little things which are likely to cause a negative to be rejected which a skillful retoucher can remove in five minutes.

If there is anything trying to the patience of the average photographer it is the demand for re-sittings; hence we must make the proofs look as well as possible, and thus partially avoid them.

When a sitter is under the skylight the conscientious operator will look him, or her, over carefully, and decide what position will in his estimation give the best likeness and pictorial effect. With some people one particular view of the face will almost immediately suggest itself to the operator as best, with others several positions will appear equally good; in either case, however, the careful operator will proceed to do the best he knows how, and usually make several negatives, selecting the best position and lighting.

Now when these sitters present themselves for a re-sitting, often for a some trifle, such as has been mentioned, are not the chances considerably lessened for making even as good a negative as the first?

The operator cannot put one-half the enthusiasm into the work that he did before. He feels that he has already done his best, that he has honestly earned the price of the sitting, and now must do the work over again.

Perhaps the sitter feels a little ashamed to ask for the re-sitting (although this is not so likely), and that lessens the chances of success. Some people seem to intend to sit again when they sit the first time; that class, it is needless to say, is particularly disagreeable to photographers.

The writer believes in making the first sitting with great care and discouraging re-sitting as much as possible. Let the operator take plenty of time, talk pleasantly with the sitter, and try and bring out the best expression. Take as many plates as you can afford, or as the subject demands.

Now, to return to the subject after this long digression. A wholesale retouching of negatives before printing proofs is not recommended, but whatever can be done in a few minutes to remove glaring defects is strongly advised. The writer considers it perfectly legitimate to remove or very much suppress any lines or shades on a forehead that indicate a frown. A great many retouchers do not realize how much an expression can be improved in this way without destroying the likeness.

In conclusion, I want to say that it is probably less work to do the small amount of retouching suggested before printing the proofs, than to ex-

* *Chem. Centralblatt*, 1879.

plain to the customer what you can do after the proofs are printed from untouched negatives.

The chief advantage appears in the smaller number of re-sittings.

E. B. Luce.

Correspondence.

GEORGE FRANCIS SCHREIBER.

To the Editor of THE PHOTOGRAPHIC TIMES.

Dear Sir: Your issue of the 15th inst. brings the sad news of the death of one of our earliest pioneers, Mr. Schreiber, of Philadelphia. As you say, "we lost a landmark of the earliest time." But are the data furnished in your article, and also in the one from the *Philadelphia Evening Telegraph*, correct? I have a book published in 1864, by M. A. Root, entitled "The Camera and the Pencil," which does not quite agree.

Following are a few extracts:

"The earliest experiments were performed, either with single lenses, or with plano-convex lenses variously combined. These were succeeded by the achromatic object-glasses of Voigtlander & Sons. of Vienna, after Professor Petzval's calculation. The latter were introduced into the United States by Langenheim, Voigtlander's brother-in-law. He took up the art where Cornelius left it, and for several years was the leading photographer, not only in Philadelphia, but probably in the world. And the fact should be commemorated, that he has done as much as, if not more than, any other to advance this art, and render it worthy the notice of the most intelligent and cultured classes in the community, In just recognition of his liberality, skill, and artistic enthusiasm, six or seven valuable gold medals were conferred upon him by European sovereigns, on their receiving from him a large panorama of Niagara Falls.

"In 1848 he introduced, at great expense, the talbotype into the United States, by which he printed from paper negatives.

"In 1850 he also introduced the stereoscope here, and by his efforts the American Stereoscopic Company was established. . . .

". . . . In 1845-6 F. Langenheim, in Philadelphia. was generally acknowledged to be the first scientific and practical daguerreotypist in this country, and probably in the world. He has skillfully applied the new art to the manufacture of magic lantern slides. of an exquisite quality. His microphotographs are far superior to any we have seen made by others on either side of the Atlantic. Following him were Van Loan, Mayall, Plumb, and Simons.

"Mayall became sole proprietor of the since widely known establishment at 140 Chestnut Street, in 1845. On June 20th, 1846, he disposed of it to M. A. Root." . . .

". . . . Mr. Schreiber, who in 1850 succeeded Langenheim in Philadelphia, has practiced the albumen process with fair success. He has excelled, especially, in copying *poor* daguerreotypes."

The principal differences between the two accounts are: The credit for the use of talbotypes and the making of stereoscopic pictures, also the view of Niagara Falls and the making of stereopticon slides.

I do not know which is correct, but think that an historical article, no matter how trivial, should not be open to question. I therefore make bold to write to you, asking you which is the correct account.

Yours truly,

Fred. D. Maisch.

CHICAGO, Jan. 17th, 1892.

IN addition to my remarks published in THE PHOTOGRAPHIC TIMES on page 40, I take the liberty to respond briefly to the above letter.

The extracts from "The Camera and Pencil," by Marcus A. Root, throw still more light upon the history and the works of Frederic Langenheim, and they are correct in the main, but take all luster from old Mr. Schreiber, and reduce him to quite a subordinate position.

Root was entirely wrong to speak of the hyalotypes as prints made from paper negatives, for they were diapositives, and when they were brought forward in 1850 (not in 1848 as is erroneously stated), the talbotype had been nearly done away with, and the albumen film had taken its place. Langenheim made negatives on albumen films and glass plates, it is true, but Whipple anticipated him, and his patent is dated five months previous to that for the hyalotype.

Of the followers of Langenheim none became prominent but Mayall, who was instructed in the albumen process by Langenheim in Philadelphia, and after emigrating to England practiced it to a great extent, and made a name for himself in consequence. The actual successor to Langenheim was Schreiber, and to some extent James E. McClees, who, however, embraced afterwards the Whipple process.

Plumb and Simon had but little experience in negative making, and Van Loan none at all at that time. His reputation as a photographer dates with the introduction of the collodion process.

Whether Root was justified to write of Schreiber as he did in the last paragraph quoted, is more than doubtful to my mind. Root was an excellent daguerreotypist, and at his time was in the front rank of the profession; but as a photographer he never rose above mediocrity, and indeed I well remember how reluctantly he adopted any of the then known negative processes. Only after he and Doctor Giles Langdell had, on July 15th, 1856, taken out patent No. 15,341, for the tinting of ambrotypes, and when all Philadelphia made collodion negatives, did we hear of Root following suit.

Marcus A. Root and many of his contemporaries disappeared altogether from the photographic horizon when the daguerreotype was abandoned.

With the exception of four or five still alive, George Francis Schreiber survived them all and kept thoroughly posted in all the modern negative and positive processes, remaining an active and renowned photographer to his dying day.

Charles Ehrmann.

The Editorial Table.

From Bernard Meyer, manufacturer of paper boxes, at 151 Chambers Street, New York City, we have received a very pretty calendar, decorated with colored reproductions of floral designs.

WE are indebted to the publishers of the *St Louis and Canadian Photographer* for the substantially bound volume of this periodical for 1891. With its classified index, it makes a convenient book of reference, which will be appreciated in our library.

Loeber Bros., 111 Nassau Street, New York City, have issued a very complete and attractive illustrated catalogue of photographic apparatus. It contains, in addition to descriptions of various cameras and other apparatus, price lists of plates, paper, trays, lamps, lenses, and the various utensils required by amateurs. At the end of the catalogue is a complete list of photographic publications for sale by this enterprising firm, including the entire list of the "Scovill Photographic Series."

Notes and News.

Mr. A. Garret Fox, of Rockford, Ill., has transferred his photographic business.

J. A. Mooney, photographer, of Charles City, Iowa, is dead.

Geo. W. Brown, photographer, of St Paul, Minn., contemplates discontinuing his business.

Dubbs & Co., photographers, of Toledo, Ohio, are about dissolving their partnership.

The Amateurs of Pittsfield, Mass., are about forming a Camera Club in that city. One meeting has been held already, and at the next meeting the club will probably be organized with a membership of from forty to fifty prominent amateurs.

The New York Camera Club had the annual election, which occurred Wednesday evening, January 13th.

The following officers were elected for the ensuing year: David Williams, President; Samuel W. Bridgham, Vice-President; Robert J. Devlin, Treasurer; Harry B. Reid, Secretary; David Williams, William J. Cassard, Samuel J. Bridgham, Harry B. Reid, Franklin Harper, Robert J. Devlin, W. Townsend Colbron, William A. Fraser, Thomas Manning, Trustees.

A new Constitution and By-Laws were also adopted.

"Let there be Light."—*Photographisches Wochenblatt,* ably edited by Dr. A. Miethe and ever welcome to us, appears at the beginning of the new year in a new wrapper embellished with an artistically and handsomely composed vignette. Surrounded by photographic implements, and flanked on one side by the representative owl and on the other by the Berolinian bear, rises Pallas Athene in a halo of sunlight, bearing the motto of the Chautauqua School of Photography: "Es werde Licht" ("Let there be Light").

"One of the best photographs of the late Gen. W. T. Sherman ever taken, is reproduced in the latest December issue of THE PHOTOGRAPHIC TIMES," says San Francisco *Morning Call,* of January 10th. "It is from an original, taken by Mr. Gutekunst, of Philadelphia, who has won unlimited praise for his pictures of prominent Americans."

Boston Camera Club Exhibition.—An informal exhibition of the photographic work of the Boston Camera Club is now being held at the club rooms, 50 Bromfield Street. The collection numbers 600 pictures, and admirable work is shown. A careful consideration to artistic qualities is evident, as well as to the technicalities; and there are some photographs which represent the highest attainments in photography.

Organic Photographic Developers.—Before a recent meeting of the Society of Chemical Industry Doctor Schlichter read a paper by Doctor M. Andresen, of Berlin, the patentee of eikonogen. The author brought out in an interesting manner the relation which exists between chemical constitution and the developing power of organic compounds. The compounds of the aromatic series which may be used as developers are those which contain at least two hydroxyl groups or two amido groups, or one of each, in the benzene nucleus. But the meta compounds cannot be used as developers, therefore resorcinol is useless in photography. On the other hand, the para and ortho compounds are developers.—*Pharmaceutical Era.*

Miss Adelaide Skeel.—Among the regular lecturers before the Chautauqua Assembly next summer, *The Chautauquan* February number announces, among other prominent men and women, Miss Adelaide Skeel, and speaks of her "as a well-known amateur photographer, and contributor of bright and interesting articles to many of the magazines."

Miss Skeel's articles in THE PHOTOGRAPHIC TIMES and the "American Annual of Photography," so full of wit and humor, and ever so welcome to the reader, leads us to expect that she will lecture equally well on a photographic subject in either the Amphitheatre or the Hall of Philosophy at Chautauqua. She is a graduate of the Chautauqua School of Photography, and at present is a student in the advanced class.

No. 1, Vol. II, of the *Air Brush Journal,* a quarterly periodical published at Rockford, Ill., by the Air Brush Mfg. Co., has come to our table, and contains a good deal of necessary reading matter relating to this wonderful art tool.

THE PHOTOGRAPHIC SOCIETY OF PHILADELPHIA.

Opening the New Rooms.

The new rooms of the Photographic Society of Philadelphia, on the second floor of the building No. 10 South Eighteenth Street, were opened Thursday evening, January 21st, in the presence of a large assemblage of invited guests. The apartments consist of a commodious meeting and exhibition room, admirably arranged and adapted for the purposes in view; a reading room and library well supplied with comforts, and a stock of books and magazines pertaining to photography in English and other languages, and a fully equipped working department, including dark-rooms, etc.

All are suitably fitted up and furnished with modern appliances. On the walls of the exhibition room are suspended more than 100 pictures, representing the work of many of the Society's members. This exhibition, which is the Society's annual competition, will be open to members and their friends during the week commencing February 1st. Previous thereto, during next week, the four photographs which receive the highest vote of the members will be considered the honor pictures of the year.

The guests listened to remarks by the President, Mr. John G. Bullock, and were then entertained with a charming exhibition of about 100 lantern slides, the work of members.

A collation was served afterward.

THE PHOTOGRAPHIC SOCIETY OF PHILADELPHIA.

A stated meeting of the society was held Wednesday evening, January 13th, 1892, Vice-President Joseph H. Burroughs in the chair.

The Board of Directors presented their monthly report, in which they announced the election of Horace Howard Furness, Jr., to active membership.

Progress was reported in the work on the improvements in the meeting and work rooms, and it will be completed in time for the opening reception on January 21st. Attention was called to the Honor Picture Competitive Exhibition which would open on the evening of the reception, continuing until February 10th. On the evening of February 3d an illustrated lecture would be given by Dr. C. L. Mitchell on "Switzerland—The High Alps."

Mr. F. E. Ives exhibited one of his cameras for composite heliochromy. With a lantern objective having only one (large) aperture this camera produces three sharp images, exactly alike as to size and perspective, and on one plane. Mr. Ives stated that such a camera would prove to be a practical necessity for composite heliochromy, and he regarded it as an optical triumph.

The subject announced for discussion, viz., "The Permanency of the Undeveloped Image on Dry-Plates—what conditions influence it?" was next taken up.

Mr. Pancoast stated that some time ago he purchased three dozen plates of a well-known make. He used one dozen with excellent results at the time of purchase; the rest he laid aside, and did not use them until May, 1891, when he exposed four and found them all right. On May 16th he exposed six more on landscapes and interiors, giving rather full exposures. These were kept in the holders until August 12th, then transferred to a box containing old style separators and put away in a dry place, standing on edge. A week ago Mr. Pancoast commenced development. On placing a fully exposed landscape in pyro and potash developer no trace of image appeared. A second plate treated to a dilute alkali bath previous to the pyro, then subjected to a prolonged and forced development, produced no better result. A third plate, landscape, hydroquinone developer, still no result. A fourth plate was next tried in a mixed eikonogen and hydroquinone developer, and, strange to say, a very fair negative was the result. He then tried some of the unexposed plates on neighboring houses, producing good negatives. A plate of another man, purchased in 1889 and packed with the others, subject to the same conditions, on development with hydroquinone resulted in a good negative.

In reply to questions, Mr. Pancoast said the temperature for all was the same—about 60 deg. He still had one plate as yet undeveloped. They were glass plates.

Dr. Mitchell said it was generally recognized that eikonogen would bring out details that pyro would not. He had several times used pyro on much under-exposed plates, and notwithstanding the use of a large quantity of alkali he got hardly any image. He remembered one or two cases where, noticing fog on the edges of the plate, he had poured the developer off, washed the plate and put it in eikonogen developer, the result being an almost instantaneous flashing up of the image—so quickly, in fact, as to give one the impression of an over exposed plate. While he could not explain or give any good reason why Mr. Pancoast's plates did not come up properly, he thought there was no question that eikonogen would often bring out an image that pyro would utterly fail to produce at all.

Mr. Earle stated that he had tried similar experiments in this direction. He had purposely carried exposed plates in the holders for six months and more, and on development with eikonogen had obtained as good negatives as he ever did. The developer was eikonogen—not hydroquinone and eikonogen, from which he judged that in the mixed developer it was the eikonogen that was the more active agent.

Mr. Carbutt said that his experience had been quite contrary to Mr. Pancoast's. He had made several hundred exposures in Europe in 1890, and they were not yet all developed. He had developed from time to time and found no decrease in the image—if anything, rather an increase. Last week he developed two packages that had been exposed in 1890, and they had attained such an extreme rapidity that it took a very acid ferrous-oxalate to get any decent image at all. With the ordinary eikonogen and hydroquinone developer they were entirely beyond control.

Mr. Pancoast thought the trouble lay in the material of which the plates were composed. In plates of some makes the emulsion was not permanent.

Mr. Bell added his testimony in regard to the pyro and a mixed eikonogen and hydroquinone developer. Several times, in using pyro, he had failed to get any good results, but in changing immediately to the mixed developer he had obtained a beautiful image.

Dr. Mitchell said that eikonogen, under certain aspects, was, next to the new para-amidophenol, a very energetic developer. It seemed to go to a certain point, however, and then stop, so that while one got a great deal of detail

in the image, the required density would have to be obtained from hydroquinone. A combination of eikonogen and hydroquinone was very like a partnership between two good fellows. There was one fault which he believed existed in all gelatine dry-plates, and which increased with the rapidity of the emulsion, and that lay in the boiling of the emulsion. In this boiling the silver reaches a state of strain, so to speak. The particles of silver, being in a state of molecular separation, seem to be hanging at a point where there is a certain amount of tension. Now some unknown circumstance—it may be the character of the weather, the temperature, or the condition of moisture in the atmosphere at the time the emulsion is made—serves to start a disruption, gradually at first, but increasing, so that after a while the emulsion becomes utterly insensitive. Then again it may be influenced by the action of the light in making the exposure. The impression of the light on the sensitive surface may be just enough to start molecular disruption, which increases in a few weeks, utterly changing the character of the plate and preventing any image being brought out. Two or three summers ago a former member of the society made an excursion to the Adirondacks, taking with him quite a large number of plates. They were a new lot, just from the factory, and he omitted to test them before he went away. However, he made a number of exposures, and when he came back started in to develop. He failed utterly in getting an image; the whole lot were bad.

Mr. Bell asked Mr. Carbutt if he knew whether manufacturers to-day used any tannin at all in making the emulsion.

Mr. Carbutt could only answer for himself. He did not use any.

Mr. Chapman had been troubled with the film negatives darkening from the edge inward when kept several months after exposure, the trouble increasing with the length of time they were kept until, in some cases, it covered the film entirely.

Mr. Wilson suggested soda in the packing or separating paper as the cause.

Mr. Carbutt recommended packing in waxed paper as a preventive of fogging from the edges.

Mr. Brown favored the old-time method of packing plates tightly together with a piece of orange post office paper between each pair. Plates packed in that way, very tightly wrapped together, he had kept four or five years, and they were as good at the end of that time as when he bought them. The present method of separating plates permits the circulation of air between them, carrying with it gases and impurities which would tend to injure the plates and bring about the blackened edges spoken of by Mr. Chapman, extending finally to the center of the plate.

Some time ago he placed some plates that were working admirably into his plate-holders, where they remained over two months. When exposed and developed he found this blackening upon the edges. Curiosity prompted the trial of some of the plates he had kept in a tin box in the same paper packages in which they had been received. Result: no blackening. In the former case the plates in the holders were exposed to the air, whereas those in the paper box enclosed in a tin box were kept from contact with the air; none could get in. He would suggest that the makers pack their plates closely together, rather than separate them as was now done. It is his experience those packed tightly did not rub or scratch.

Mr. Wilson mentioned a case where he had left a plate on the holder for a while, and on development found the word "exposed" printed across the negative.

Dr. Mitchell suggested that, in making his exposure, he must have held the slide in the sun, and the painted letters, absorbing a certain portion of the light, made an impression on the plate when the slide was returned to the holder.

Mr. Stirling did not see how this could be, as the word 'exposed" would be on the outside, unless the slide was put in the wrong way.

Mr. Wood referred to the plates mentioned by him at the last meeting which had been three weeks in the hypo without changing. A friend of his had had the same experience, and had suggested that plates developed with eikonogen, above a certain temperature so tanned the film, or did something to it, that it prevented its clearing at all.

Several lantern slides, made with the new para-amidophenol developer, were next exhibited by Dr. Mitchell, after which the meeting adjourned.

Robert S. Redfield,
Secretary.

Queries and Answers.

206 H. B. H.—Will you answer in THE PHOTOGRAPHIC TIMES, what shall I add to emulsion made after G. L. Sinclair's, M. D., formula, the same being slow, to increase its sensitiveness? I have some prepared and it will not work good for shutter views.

206 *Answer.*—Provided the emulsion be properly made digest it for from five to ten days in absolute alcohol, at a temperature not less than 65 deg. F. You will readily understand the necessity to thoroughly drain from the emulsion shreds all adhering wash-water before immersing them into alcohol.

207 T. B. C., of Ann Arbor, complains of the inability to get in his landscapes nice gradation in light and shade. At times he is well satisfied with his productions, and especially so since adopting color-sensitive plates, but generally his pictures are defective in finer middle-tints. He has sent us for criticism several of his photographs.

207 *Answer.*—The pictures received from our correspondent are not quite as bad as he seems to think, one or two of them being very fair. The main difficulty is, however, that some of them are under-exposed and others not sufficiently developed; so is, for example, the forest scene with large tree in foreground much under-exposed, and the landscape with lawn and cottage in the distance too feeble to print from. We advise T. B. C. to continue with orthochromatic plates and be more careful in the developing of his pictures.

208 On page 269 of 1892 "Annual," under the head of "Printing on Plain Paper," you give formulas of ammonium chloride, gelatine and water emulsions, to be sensitized by floating on silver bath. Will this give as good a print as the aristo emulsion paper?

208 *Answer.*—It will not. The formula is intended for plain or so-called mat surface paper. There is too little gelatine in it to give it the gloss of aristo or Omega paper.

CHAUTAUQUA SUPPLEMENT

TO THE

Photographic Times.

CONDUCTED BY PROFESSOR CHARLES EHRMANN.

JANUARY, 1892.

NOTICES TO STUDENTS.

Graduates desiring to join the advanced class are requested to report at once to the instructor.

Candidates for the Chautauqua diploma will be assisted by the instructor in answering the examination questions, as far as he can do so consistently with his position.

Para-amidophenol begins to enjoy immense popularity among American amateurs. We advise all our students to give it a trial. It works rapidly, requires but short exposure, and density to any degree can be attained with it.

So far it has been used in one solution mixed with alkali. A two solution developer of the same substance is in course of preparation, and will soon be on the market.

"Rodinal" is nothing but a concentrated solution of para-amidophenol. The pure substance is imported and for sale as heretofore by the Scovill & Adams Company, and our students can procure it through the instructor.

THE EXCHANGE CLUB.

The next exchange is due on February 15th. All members are urgently requested to select but choice negatives, and to print the whole number of pictures wanted as near as possible uniform in depth and tone. The exchanges should all be of good quality if every member is to be satisfied, and full justice be done to the negatives. All members and ex-members of the school are invited to join the club. We annex the revised constitution to make everybody know what the intent and purpose of the club is :

CHAUTAUQUA PHOTOGRAPHIC EXCHANGE CLUB.

AT a meeting of the members of the Chautauqua School of Photography, held August 23, 1888, at the Children's Temple, Assembly Grounds, a Photographic Exchange Club was duly organized, and the following Constitution adopted :

1. The Club shall be known under the name of the "Chautauqua Photographic Exchange Club," and shall be considered a filial institution of the Chautauqua School of Photography.

2. It is the purpose of the Club to form more intimate relations between the members of the different classes ; to diffuse among them a higher knowledge of photography ; to observe, by the mutual exchange of photographic productions, the progress made by individuals, and learn from the work of others how to improve in the art.

3. Only members and ex-members of the School of Photography are eligible to membership in the Exchange Club. An annual due of 50 cents shall be paid to the Secretary on application, or at the beginning of each fiscal year.

4. Application for membership must be made to the President, and may be rejected if, in his opinion, the candidate is not far enough advanced in Photography to compete with the members of the Club.

5. Exchanges are made every three months. The first to take place in November, 1888, and followed in February, May, and August, 1889, etc. Exchanges to be sent to the Secretary before the 15th of every exchange month, at the expense of the sender. Distributions made by the Secretary are at the expense of the Club. The pictures must be printed from one negative, either on albumen, bromide, cyanotype, or chloride of silver gelatine paper, unmounted. Size at the will of the sender.

6. Contributions received after the 16th of the Exchange month will be held till the next following Exchange ; or be returned if so desired.

7. Members will be notified how many pictures are required for exchange. One additional must be sent, of which the President will make a collection and exhibit it on the annual Commencement Day.

8. THE PHOTOGRAPHIC TIMES shall be the organ of the Club. All advertisements and information pertaining to it will be duly published therein.

9. Alterations of or amendments to the Constitution may be proposed at the annual meeting.

10. Communications shall be directed to the Secretary.

11. On or about Commencement Day the members will meet at Chautauqua.

12. The business of the Club is intrusted to a President, Secretary, and Assistant Secretary.

13. The Superintendent and Instructor of the School shall be *ex-officio* members of the Club.

14. The officers of the Club, elected at the meeting of August 21st, 1891, are :

President.

PROF. CHARLES EHRMANN, 423 Broome St., New York.

Secretary and Treasurer.

MRS. C. L. PIERCE, - Elmhurst, Riverside, Conn.

Assistant Secretary.

GOULD W. HART, - 1028 Gates Ave., Brooklyn, N. Y.

QUERIES ANSWERED.

No. 458.—(1) How much nitrate of silver is required to produce 60 grains of chloride of silver as wanted in the combined fixing and toning bath? (2) What is a 10 per cent. solution? (3) What is the correct time of exposure for Star bromide paper No. 2; the source of light a 1-inch petroleum burner? (4) Must bromide paper be handled in yellow light? (5) Should stereoscopic pictures be printed on albumen or Omega paper?

Answer.—(1) Let us translate the formula for practical use and say: "As much chloride of silver as will precipitate from so much nitrate of silver;" which is of course not correct as to chemical equivalents, but sufficiently so for the preparing of your bath. (2) Ten per cent. is 1 part in 10 parts. For photographic practice it will do to take 1 part by weight of the substance to be dissolved and 9 parts by measure of the solvent. (3) That depends much on the intensity of the negative. When not above or below the average, at a distance from the source of light of from 15 to 20 inches, from 10 to 15 seconds will do if you develop with eikonogen. (4) It *may* be! because of its lower sensitiveness when compared with any rapid plates. (5) We prefer albumen paper, not very highly burnished. Stereoscopic negatives should not be very intense, and the prints but of average depth. Stereoscopic diapositives give the best effects. Scovill & Adams Co. manufacture a camera for making them by one operation.

No. 365.—Wants more distinct information on the Chautauqua toning bath. He works as described in the following: (1) Put the print through three wash-waters of about ten minutes each; then into the fourth water to say one pint, put half ounce saturated solution of sodium bicarbonate, and half ounce of saturated solution sodium chloride, and let remain in this for about five minutes. After this pass them through another clean water, when they are ready to tone. (2) In the mean time you will have made up your toning bath as follows: Put one ounce of chloride of gold solution (containing one grain gold) in your toning tray and add carefully a saturated solution of sodium bicarbonate until the litmus paper turns blue again; then add ten grains of crystals of acetate of sodium, dissolve, and then add nine ounces of water, and let stand for one half hour, when it is ready for use. (3) As the prints finish toning, that is, when they have changed from the red color to a deep purplish, lay them in clean water until all are finished. (4) Make up your fixing bath as follows:

Water	1 gallon
Hypo	1 pound
Sodium bicarbonate	1 tablespoonful
Sodium chloride	1 tablespoonful

Take enough to cover prints well, put in tray, and immerse the prints from 15 to 20 minutes. Do you use any aniline blue? (5) What plates are best for flash-light pictures, and does this require special treatment in developing? What developer gives the best results for flash-light work?.

Answer.—(1) Three washings are hardly sufficient. Remember the nitrate of silver mechanically adhering to the print made upon self-sensitized paper should be washed away entirely. To put any kind of soluble chloride into the wash-water of prints we have never recommended. When a chloride is present chloride of silver will form in a thin stratum upon the surface of the print, and mislead finally in judging of the tone correctly; and when such print is immersed into the fixing bath, the metallic silver of the print is untoned, no gold having been precipitated, and its color will be red or reddish. (2) Is correctly described. (3) Correct. (4) Your fixing bath is not made according to the lesson, but it will do, and possibly prevent blistering. Why do you want to put aniline into the bath? We cannot see any utility in doing so. The colder the water is, the more difficult it will be to dissolve the free nitrate of silver adhering to the paper. The stronger the solution the more milky will be the wash-water. (5) For flash-light exposures I recommend the Carbutt special plate. Treat a flash-light exposure like any other instantaneously taken, and develop with eikonogen in one solution. (See formula page 43 of the "Photographic Instructor," 3d edition.)

No. 470.—(1) Where can I purchase celluloid or ivory films for positive printing? (2) I have graduated last year. May I still call on you for assistance, and will you criticise my work as heretofore?

Answer.—(1) Scovill & Adams Co. sell positive celluloid films in white and pink. (2) We never refuse assistance when needed; leastways to Chautauquans. You are still a member of the School in our estimation.

No. 486 wishes to have a developer that will produce softer negatives and quick printers. He uses the S. P. C. pyro-soda, and his negatives, at least some of them, are of such enormous intensity that it takes about half a day of sunlight to print from them.

Answer.—That is not the fault of any of your developer, but your own. Development is carried

on too far. But if intensity is too strong why not reduce it by the means you ought to know? See the respective lesson.

No. 175 has an old Harrison portrait objective; the back lens is broken. Can the front lens be utilized for photographic purposes?

Answer.—It can, and will make an effective landscape or group lens, provided its mounting be rearranged. The convex surface must be turned towards the ground glass, and outside it must be placed diaphragms of different diameters. If you will inform us of the focal length of the lens, and its diameter, we will tell you how far from the lens the diaphragms are to be placed, and what their diameters should be.

No. 555.—(1) Why does a Seed plate develop much better with the Seed solution than with that of our lessons? (2) What is the difference in action and result of developer mixed with sodium carbonate or with potassium carbonate?

Answer.—(1) Mr. Seed compounds his developer to suit the plate of his own manufacture. The Chautauqua formulas are generally best adapted to the various Carbutt plates. (2) The action of potassium carbonate is about twice as energetic as that of crystallized sodium carbonate, provided the same quantity in weight is taken of either. A renowned writer on practical photography said: "With potassium carbonate better details are produced, sodium carbonate tends to attain greater intensity. For that reason Mr. F. C. Beach compounded a pyro developer containing both of the alkalis, probably according to the doctrine, What one cannot do, the other probably will."

No. 106 wants to know if it is not possible to prepare albumen paper at will suitable for either weak or very intense negatives.

Answer.—Albumen paper sensitized on a weak silver bath, and not fumed in the vapors of ammonia, and printed in the sun, will give a totally different picture from paper sensitized in a strong solution and printed in diffused light. Strong light penetrates easily through a film considered dense when viewed in weak light. It is altogether a matter of comparative density.

No. 588 asks, who invented photography? The examination questions add, "*proper.*" What does that mean?

Answer.—Fox Talbot made the first photographs in the present sense of the word. The daguerreotypes of Daguerre and Niepce were sun pictures, it is true, but not photographs proper.

No. 557.—1. Do you use the bicarbonate of soda in the next but last wash-water before toning?

2. Is the bath to be used immediately after mixing Nos. 1 and 2, or must it be allowed to ripen, and how long if at all?

3. My toning operations are usually not large, mostly not over a sheet at a time. According to the manner of mixing the bath, 1 grain of gold would not give quite 4 ounces of solution for a toning bath, which is not enough to cover the prints. Will it do to dilute the bath to say 8 ounces, so as to have enough quantity to work with?

4. Is this bath durable enough to use from one time to the next, when intervals between operations are a week or more apart?

5. Do you advise using anything whatever to redden the prints before toning? If the prints are not reddened with salt or acetic acid before toning, how can one judge of the progress of the toning, or when a print is toned enough?

6. Quite frequently I have a weak negative which I prize on account of the subject, and which I cannot repeat; and under these circumstances is it necessary to resort to Omega paper for a passable result?

7. I made up a toning bath according to your instructions as given in your article in the "Annual" for 1892. It went all right until the chloride of silver was added, when it became muddy, and afterwards became clear by the substance settling to the bottom. The bath toned very slow when made up, 1 grain gold to 4 ounces solution, the lighter portions becoming greenish while the darker parts were reaching the desired tone. The tone itself was good, except the greenish tints in the light parts.

Answer.—1. We do.

2. Allow to stand for a short time, not longer than half an hour.

3. You can do so perfectly well.

4. It is not; by long time standing a gold bath neutralized with carbonate alkalins or alkaline salts, the terchloride of gold is reduced to subchloride, which does not tone, or to a sub-oxide even. Such an old bath can be restored again to activity by adding hydrochloric acid enough to make the solution clear and of a light yellow color. When in that condition neutralize again with alkali and proceed as in the first instance.

Gold baths neutralized with insoluble carbonates, carbonate of calcium (chalk) or carbonate of magnesium are permanent.

5. When the print in the wash-water is of a red color, the process of toning can be much better watched than if the print were of a bluish-black color.

6. Omega paper is just the thing for such negatives; but why not resort to intensifying? See the respective lesson.

7. Chloride of silver is soluble in hypo, as you ought to know. Of course does the solution turn clear again after the silver chloride is dissolved. The bath is intended to work slow. The commercial fixing and toning bath tones too quickly, and there is every possibility that a majority of the prints fixed and toned in it are not properly fixed before the desired tone is attained. When the middle tints and whites of an Omega print turn yellow or greenish, it has been over-toned. The best tone attainable with an Omega print is purple, or a purplish-black; pictures of that tone may be permanent, but when they are positively black with a greenish tone, sulphurization has doubtless taken place, and the print cannot possibly be as desirable as it is wished to be.

Pictures Received.

No. 199.—"Banjo Player," a well posed and lighted study, good negative and fine print. "Old Sawmill," very pretty view, but too feeble to make a good print on albumen paper. We should intensify this negative with iodide of mercury. "Cattle on Pasture" and "Winter Landscape" are from over-developed negatives, which might be much improved by reducing their density.

No. 345.—Bromide prints of instantaneously taken marine views. We do not like to see such feeble and delicate negatives printed on matt surface paper; printing on Omega paper by long exposure in faint light will give better results. But if bromide paper it must be, why not resort to Star No. 2, developed with eikonogen, in preference to the very poor kind you are using?

No. 461.—"Rambout House at Fishkill," built 1767. A 6½ x 8½, printed on kallitype paper and developed with borax and rochelle salt. A very fair picture of sepia tone.

We are glad to see our students experiment with the salts of iron for printing purposes.

No. 250, who does professional work in a small way, has very much improved since he last presented specimens of his work. The pictures received this month are portraits of children, very well developed, clean and accurate throughout. But the posing is not what it should be, and what the public demands of a professional photographer. Let the children assume a natural position, and you select the point to take them from.

If you desire to print your portraits vignetted, choose a background of light color, and the effect will be much better than with such dark grounds as you have chosen.

No. 207.—A collection of 5 x 7 landscapes and architectural views of exquisite beauty. We wish our fair friend had chosen to present one of these pictures to the Exchange Club. Either of them would have proved her skill much better than the very doubtful *fish*.

No. 489.—Picture of a cat. Well done. Reproductions from photographs equally good. A large Newfoundland dog is also good technically speaking, but owing to a wide-angle lens used it is awfully distorted and out of proportion. Wide-angle lenses are good enough in their proper places for the taking of interiors, or when in confined position, but they will never do for portraits, or other objects in close proximity to the camera. The distortion or exaggeration of the portions nearest to the camera condemn their use for all such work.

Chrysanthemums of light color against a positively black background, and of course with strong halation around the flowers. No. 489 asks how to remove halation from the plate; we answer simply it is impossible when the outlines of the object are as delicate as in the present instance and the halation so extremely pronounced. We have successfully removed halation around windows or mirrors, by rubbing with alcohol-moistened tampons, or by the means described in our lessons, but neither of these means can be successfully applied to this picture.

Some of the prints, those of a bright purple tone, pass inspection; the others, of greenish black color and yellow whites, are overtoned, *i. e.*, have been too long in the combined fixing and toning bath, have become sulphurized, and are consequently worthless.

No. 608.—Lantern-slides on Carbutt plates developed partly with para-amidophenol and partly with our own eikonogen. Beautifully clear, of neutral black color, and well detailed.

No. 609.—Several 4 x 5s taken with the Waterbury A lens upon Carbutt Eclipse plates.

Very good for a young beginner and very encouraging.

THE PHOTOGRAPHIC TIMES.

ILLUSTRATED WEEKLY JOURNAL DEVOTED TO THE ART, SCIENCE AND ADVANCEMENT OF PHOTOGRAPHY.

Issued every Friday.

W. I. LINCOLN ADAMS, Editor.

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THE PHOTOGRAPHIC TIMES PUBLISHING ASSOCIATION,
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Commercial Intelligence.

"Pleased with It."—"The Camera (Flammang reversible back), came to hand. I am much pleased with it."—D. J. CARR, office of the Chief Signal Officer, Washington, D. C.

"I never lose an opportunity to say a good word for the Scovill & Adams Company's goods," writes Mr. John Carbutt, the veteran plate-maker of Philadelphia. "Why? Because I can do so conscientiously."

The "Knack," not the camera, but the book, is something which every beginner should have. It is written expressly to help the beginner in perplexities, and is very concise and explicit. It has been reduced in price from 40 cents to 25 cents, and will be sent to any address, postpaid, on receipt of the latter amount, by the Scovill & Adams Co.

Another excellent book which has been reduced in price is "The Photographic Negative," by Rev. W. H. Burbank, formerly sold for $1.50, but now sent to any address on receipt of $1. It is substantially bound in cloth, uniform with the other numbers of the Scovill Series. It is an indispensable eompanion to "Photographic Printing Methods," by the same author.

THE CHRISTMAS NUMBER.

The Holiday Number of THE PHOTOGRAPHIC TIMES AND AMERICAN PHOTOGRAPHER (New York, The Photographic Times Publishing Association), is more than attractive—it is deeply interesting. Besides its views "About Mount Hamilton," "The Old Cabin Home," "Merry Christmas," "Vesuvius," "A Cool Retreat," and its several portraits, it has a great deal in it that is of scientific value, and especially matter of profound interest to photographers, professional and amateur. It is a well-edited, handsome magazine, and always tasteful in its make-up.—*Record-Union.*

Please accept thanks for the Christmas number of THE PHOTOGRAPHIC TIMES. It is an excellent journal, and the illustrations are beautiful indeed,—W. H. LEE, Teacher Public School, Brumley Gap, Va.

THE AMERICAN ANNUAL.

"The 'Times Annual' is a splendid book, and I wish you every success with it as you deserve."—M. WOLFE, Dayton, Ohio.

"I procured a copy of the 'Annual' last night, and in the few moments which I glanced over it I was impressed with the fact that it was a wonderful production. It is no wonder it has such large sales."—ALFRED BOUGHTON.

"I should feel as though something were missing if your most valuable 'Annual of Photography' should fail to appear at the close of every year, as it is always so full of good and useful articles, and artistic illustrations."—C. H. THEBERATH, Newark, N. J.

"I want the greatest photographic journal on earth for another year. I also want the greatest 'Annual' on earth for 1892; in fact I want two of them."—CAPT. WM. IMLAH, Quebec, Canada.

"The 'Times Almanac's' sales are beating all previous records, and we have already retailed over 100 of the lot received but a short time since."—BARKER & STARBIRD, Boston, Mass.

"I know from previous years that it is the best book on the subject published."—C. H. HAIN.

"Far Ahead."—"Your 'Annual' is far ahead of all the former efforts."—J. M. APPLETON, Dayton, Ohio.

Mr. Stebbins' "Sunset in Mid Ocean."—A 4 by 5 negative taken by James H. Stebbins, President of the Society of Amateur Photographers of New York, representing a sunset in mid ocean, has attracted much attention. It was shown at the exhibition of the American Institute Fair, and a photogravure from it adorns the last issue of THE PHOTOGRAPHIC TIMES.—*N. Y. Times.*

THE last number ot THE PHOTOGRAPHIC TIMES has a photogravure reproduction of a 4 x 5 negative taken by Mr. James H. Stebbins, the President of the New York Society of Amateur Photographers. It is a marine view—a sunset picture in mid ocean—simply a waste of heaving waters with the light effect through heavy clouds. It is an exceedingly effective picture. Eikonogen was the developer used. It was taken with a detective camera, and has a depth and breadth that an artist might well envy. The same number has an interesting article upon the new developer, para-amidophenol, from a British journal. The conclusions of the foreign writer are, that while it may be a very vigorous developer, it will not do any more than eikonogen or pyro when properly used. Its keeping qualities seem to be excellent.—*N. Y. Recorder.*

Business Notices.

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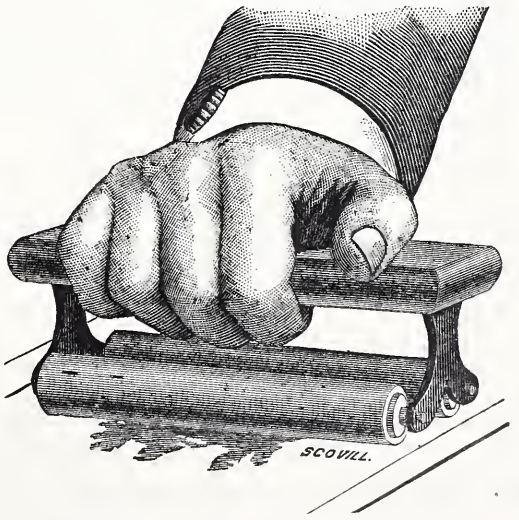
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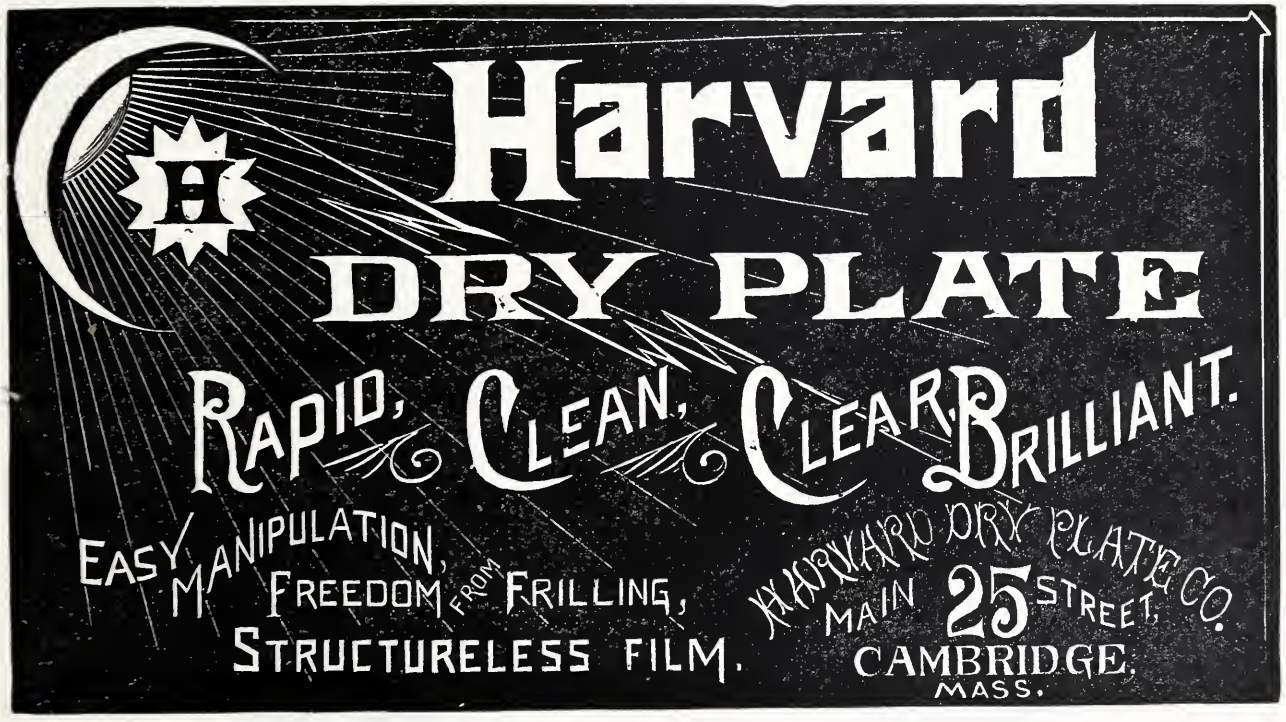
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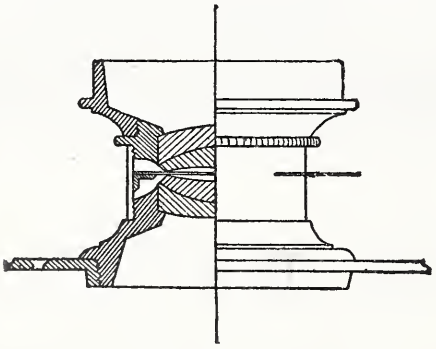
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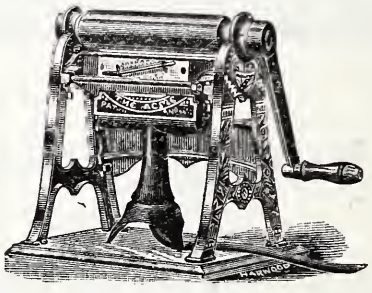
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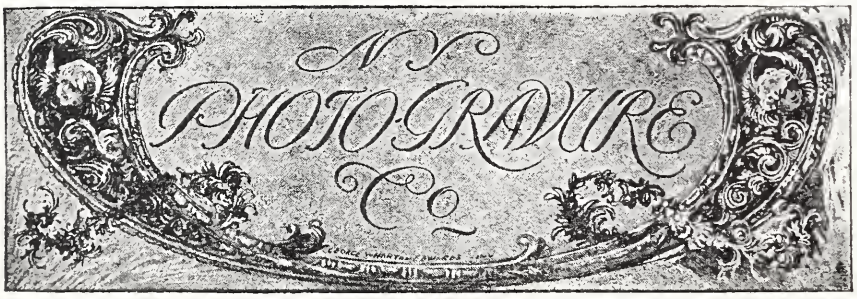
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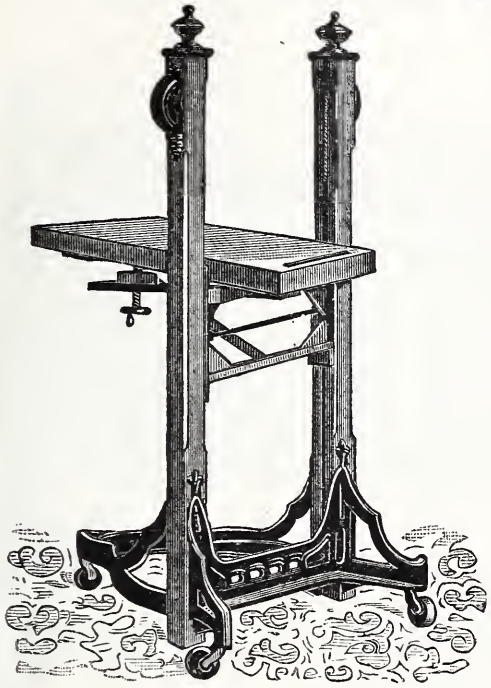
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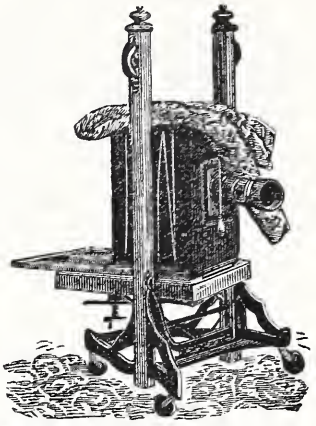
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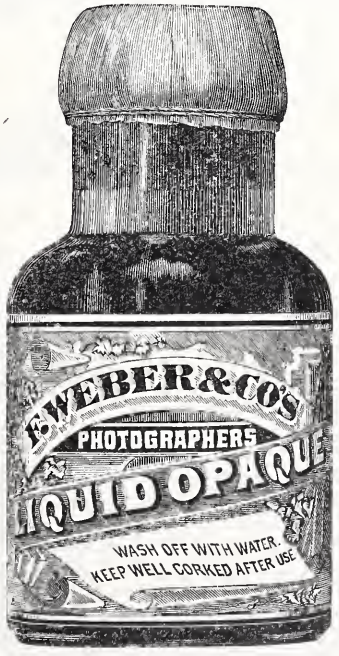
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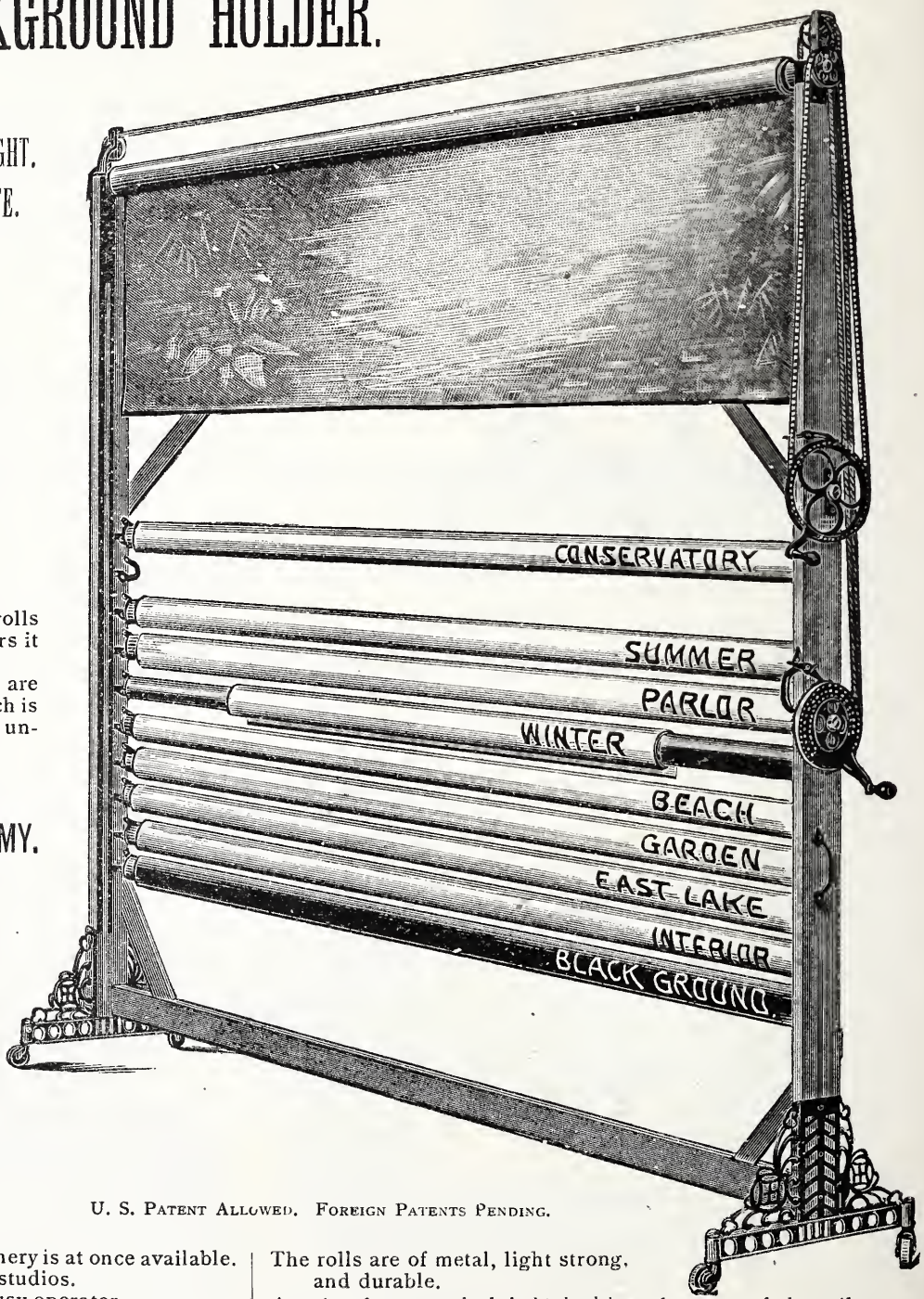
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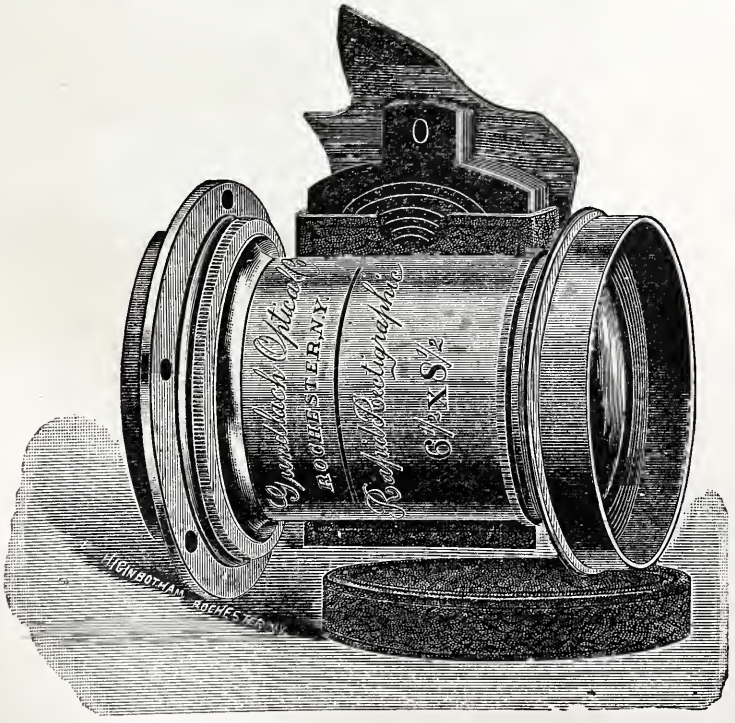
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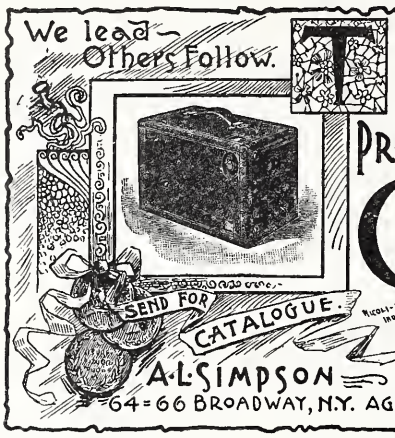
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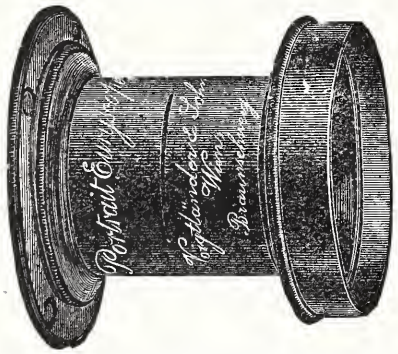
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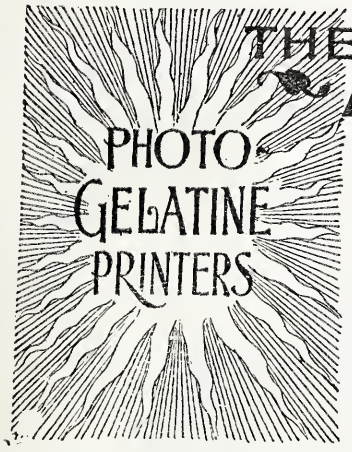
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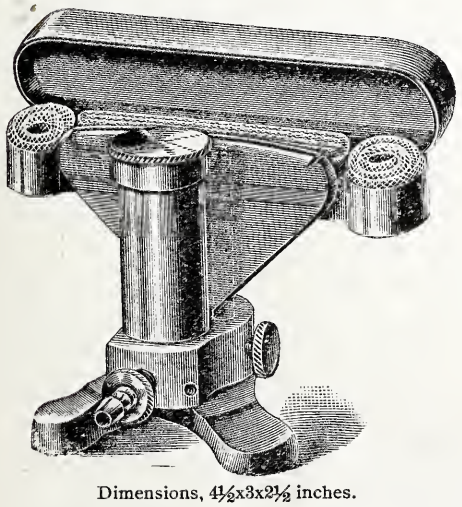
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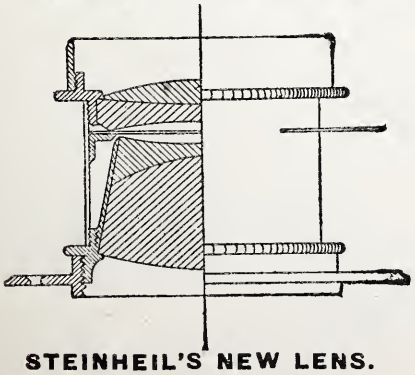
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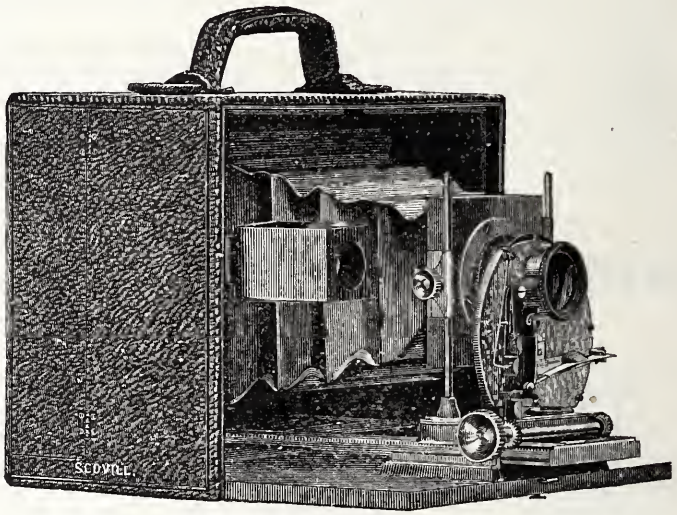
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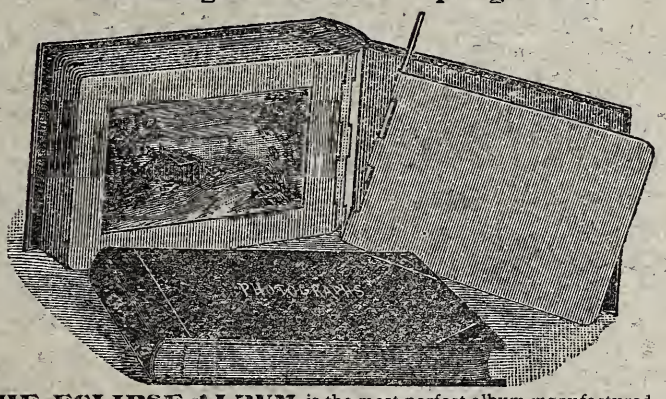
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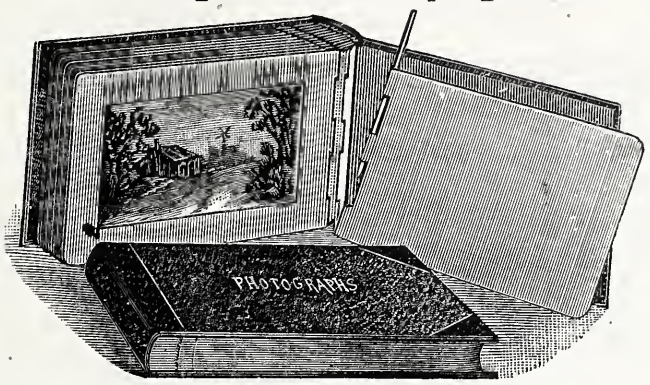
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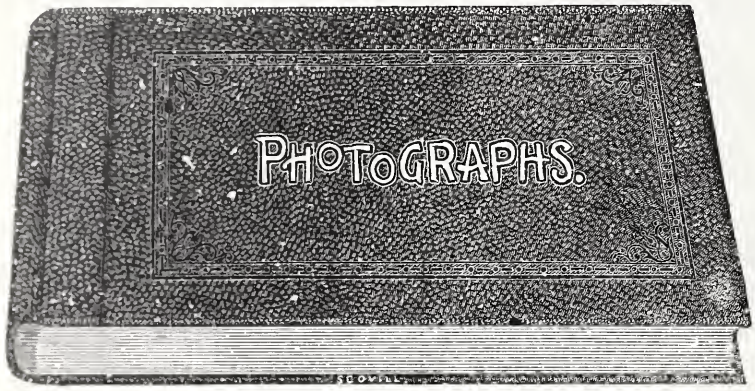
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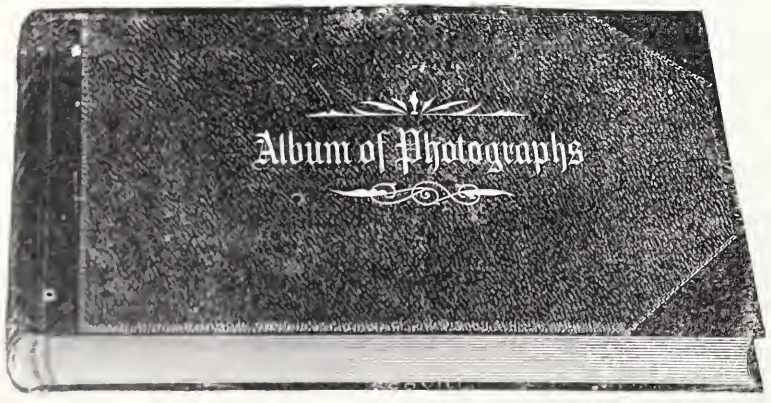
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The slight diffusion in the twigs of the tree, due partly to wind, and partly also to the single view lens which was used, suggests a gentle motion and gives reality to the picture rather than seriously marring it. There is a softness, too, in the distance which gives quite a Corot-like effect to the landscape, subordinating unimportant details and suggesting an atmosphere characteristic of the view and of the season.

PRINTING ON SILK AND LINEN.

PRINTING on silk is now employed to decorate fans, screens, shades, etc. Ready-sensitive silk is sold in Paris for that purpose, which no doubt gives good results, but which also gives the same trouble as the ready albumen paper to change by toning with gold the reddish color of the image into a more pleasing one.

This process is far from being new. Ourselves have extensively printed on silk, linen and calico when in 1865 it was the fashion to have portraits of relatives and friends, or images copied from engravings, photographed on handkerchiefs, and even on cuffs.

The process we employed consists first to wash out the dressing and stiffening of the material, then, after rinsing in pure water and squeezing the excess, to imbue it with the following preparation:

Brazilian tapioca, powdered	20
Glucose	5
Water	480

Dissolve by heat, then add

Ammonium chloride	15
Lemon juice	15

This done, the material is pinned by the four corners, allowed to dry, then sensitized by a silver bath at from 10 to 12 per cent. of water, when it is dried, and, before printing, ironed on a board lined with flannel in order that it lays everywhere in contact with the cliché.

The other operations are the same as for proofs on albumen paper, but over-printing somewhat more and using the aceto-borax bath for toning. If the material is tinted yellow from a partial reduction of the photo-preparation, it is advisable to add to the gold solution a small quantity of chloride of lime (lime hypochlorite), say, 5 : 1000, to bleach it.

After fixing in a new sodium thiosulphate (hyposulphite) solution, washing thoroughly, eliminating the last traces of the thiosulphate compound by a diluted solution of eau de javelle 1 : 500, rinsing, etc., the material is well wrung, then immersed in a dressing solution consisting of a small tablespoonful of honey and a little gum-arabic dissolved in a quart of water, when, after sponging between linen, it is ironed as said before.

Mr. H. Cooper, a good authority in practical photography, has published, in 1862 or 1863, a process to print on white silk, which we find described as follows in our note-book:

"Ascertain which is the right side of the silk and mark it. If there are any creases in the silk, lay it face downwards and over the back place a sheet of filtering paper, and then iron it until they disappear. Then prepare the following solution and filter it before use:

Frankincense, pure	4
Mastic	2
Calcium chloride	15
Spirits	480

Copyrighted.

"Immerse the silk and pin it by the two corners. To sensitize, immerse in the silver bath, 6 : 50, for at least a quarter of an hour, and again pin it up by the two corners. When the silk is quite dry, it is to be ironed before printing. Print deeply and tone in a rather strong gold bath, wash well, and fix in a new hypo bath, etc."

From 1862 to 1869 resins have been employed by some operators in England and in Germany to prepare the positive paper in order to keep the image entirely on the surface, and especially to prevent the complex compound formed in the fixing solution penetrating into the film of the paper, and thus to avoid after-sulphuration as far as possible.*

Very likely the resin processes will be revived as are many others. And, in fact, we know that a process similar to those described in this article is employed to photograph on screens, which are afterwards rendered transparent, either by the printing-out or developing method. Linotypes are also made with a resin preparation.

Sutton has recommended bleached shellac dissolved in methylated alcohol. Elemi was suggested by us as the best gum to be used in every resin process. It is a white and soft substance, not liable to turn yellow by exposure to the air and light, and therefore excellent to print on canvas, silk and linen.

Taylor has lately devised a process which we shall now succinctly describe. The sizing is done with shellac bleached by chlorine, not by sulphur dioxide, dissolved in a solution of borax or of sodium phosphate.

For sepia tones one uses :

A.

Borax	4
White shellac	6
Water	100

For purple-black tones :

B.

Sodium phosphate	4
White shellac	8
Water	100

Both solutions are prepared in the same manner : the borax or phosphate is dissolved in warm water ; then the shellac, pulverized, is added, and the whole is heated to ebullition during about two hours, replacing the evaporated water and agitating from time to time. The solution is afterwards set aside for twelve hours, then decanted, and the clear liquid is filtered first through a sponge, and afterwards through paper. It keeps for a long time by adding to it an antiseptic, a little camphor, for example.

The paper is salted by immersion in one of these solutions or a mixture of 5 parts of the borax solution and 1 part of B. It is sensitized by floating on a silver nitrate bath at 15 per 100 of water during three or four minutes. If one desires to keep the sensitive paper for a long time—more than two months, according to the author—one immerses it, when dry, in the shellac solution diluted with one volume of water.

The subsequent operations are conducted as in the albumen printing process. The color of the print is good and generally does not require toning ; it suffices to fix in a solution of sodium thiosulphate 25 : 100. With the phosphate of soda one obtains a very fine color ; if the paper is prepared with borax or an excess of it, it is better to fix in a mixture of sulphocyanate and thiosulphate. However, to insure greater permanency it is advisable to tone the proofs in an alkaline gold bath before fixing.

When the proofs are washed with the usual care and dried they are brushed on the back with a shellac alcoholic varnish, which penetrates through the paper and leaves by drying a slight luster on the surface of the image.

The process published in 1869 by Davies in the *British Journal of Photography* merits to be mentioned ; moreover, by replacing the chloride by a bromide and developing with ferrous oxalate one obtains pretty good results. The process consists in applying on the paper the following preparation, and sensitizing with a nitrate or ammonio-nitrate of silver solution :

Sodium chloride	1
Gelatine	1
Water	100

When dissolved by heat add 50 to 60 parts of an alcoholic solution of white shellac, 1:6 of alcohol, whereby a kind of an emulsion is obtained which is brushed over the material.

As we have pointed out in the beginning of this article, these processes are often employed in the industrial decorative arts. The proofs answer well the purpose, but they will fade in a more or less long period according to the care the operator has taken in producing them.

There is, however, a process liable to few causes of failure, yielding prints equally good, and in all appearance quite permanent, which most likely is in some establishments substituted for the silver print-

* Sulphuration is the term employed in photography to designate the action by which metallic silver is converted into sulphide. The fading of positive photographs formed by the reduction of silver salts arises from this action.

ing methods. We have named the platinotype. The *modus operandi* suggests itself: sizing the material with starch from arrow-root or with gelatine, and proceeding in the usual manner, that is, as on silk, etc.

To the reader interested in the photo process to print on any material without silver salt we recommend the reading of a book for sale by our publisher and every photographic merchant, "The Photographic Reproduction Processes."

PHOTOGRAPHY ABROAD.

Eikonogen—Pyro Development.

The *Deutsche Photographische Zeitung* recommends, when intensity cannot be got with eikonogen, to add a little pyrogallol to the solution. Quite right! but they seem to be behind time in Germany. It is many years since Dr. H. J. Piffard, of New York City, pointed out the benefit derived from the mixture of pyrogallol and eikonogen, the former being added when the details are visible.

The *British Journal of Photography*, which gives us this *news*, properly observes: "If there is one property of the photographic negative more than any other which it is desirable to have completely under control, it is that of density. Without it the finest detail, the most delicate half tones, and the completest absence of veil from lights and shadows are of secondary importance. There is a touch of irony of fate in the necessity experienced or suggested that pyro's rival, eikonogen, should sometimes require its assistance to finish its work for it. Pyro still holds the field as an all-round developing agent, from which no one of its homologues or congeners will ever probably dislodge it."

Another Cause of Fading.

The question of the permanency of silver photographs is again at the order of the day amongst our English cousins.

We well know that the one operation, toning-fixing process, invariably leads to the fading of proofs on collodion or gelatine emulsion films which, for keeping, are prepared with free citric or tartaric acid; these acids, as any other, however weak, originating the decomposition of sodium thiosulphate, combined or not to silver or other metal, with evolution of sulphur dioxide, and, as a consequence, causing the sulphuration of the silver which constitutes the image. We well know also that proofs toned with mercurous ammonium chloride or other mercur-compound, or uranic ferrocyanate, are not stable, the former fading and the latter blackening under the luminous action. But here is another cause of fading observed by Mr. T. Bolas, which this distinguished experimenter lately communicated to the London and Provincial Photographic Association. We quote from the *British Journal of Photography*: "The condition most destructive to permanency is the presence of sulphuretted hydrogen. If silver prints were kept in a damp place sulphuretted hydrogen would be formed, and destroy the print.* It is the custom of paper makers to search for substances for tenacious fibres, and sulphate of lime has long been used. The action of moisture and organic matters on sulphate of lime produces sulphide of calcium, caused by the organic matter of the paper reacting with the lime and so forming the sulphide. The carbon dioxide of the atmosphere deposited carbonate of lime and free sulphuretted hydrogen in the paper. It is known that any ordinary book, if put in a damp place, will soon smell of sulphuretted hydrogen. The sulphate of lime being reduced to sulphide, the reaction of the latter with carbon dioxide liberated sulphuretted hydrogen, which no silver print can stand. The presence of sulphate of lime in papers and mounts accounts for the fading of silver prints."

The conclusion: Give up silver printing for the platinum or carbon, or, better, for printing in greasy ink. Indeed, the day is not far distant when amateur and professional photographers will have to come to that.

A Certain Remedy for Halation.

Halation (irradiation, aureole) is produced by the rays of light reflected from the back of the glass plate acting on the photo film during the exposure time, the halo being so much more intense and extended as the exposure time is greater; and, when copying white and black subjects often causing a slight blurring or enlarging of the lines, which, however, may also be due to a bad focus.

It is a principle demonstrated in optics that reflection is produced on the surface of separation of two media, when there is between them a difference in the indices of refraction. Hence, if the back of a glass plate be coated with a substance having the same index as the glass, the reflection to the surface of the plate would be null, and halo and fogging prevented.

Various substances, such as "Gihon opaque," are recommended against halation. They absorb

* This is not quite correct. The image is not destroyed; it exists as silver sulphide and may be revived. This is not a critic. Mr. Bolas knows it quite well.

the rays, it is true, and to a certain extent are effective, but as they do not possess the same index as the glass there is always some light reflected.

The following mixture combining the double condition of index and absorption has been devised by Mr. A. Cornu of the French Academy of Sciences: If we make a mixture of *six volumes of essence of clove and one volume of turpentine oil* we find that it possesses the same index of refraction as glass by immersing into it a strip of glass plate from which the emulsion has been scraped off. In the liquid the plate is almost entirely invisible, the edges only being apparent by a slight red or bluish-green coloration.

The mixture is thickened with lampblack to form a paste, which is applied on the back of the plate with a brush or a tuft of cotton. The photo film is then exposed in the camera obscura, and, before developing one wipes off the black paste and develop as usual. These manipulations are not very agreeable, but it gives one the absolute certainty that the halo will be entirely avoided.

PYROCATECHIN DEVELOPER FOR BROWN TONES.

Pyrocatechin is a good developer for diapositives yielding clear shadows without any green or yellow fog. When used with potash or soda, state Dr. Eder and Mr. Valenta, who lately experimented with it for developing lantern slides, the color of the image is of a rich brown, and of a fine grayish black if to the solution sodium sulphite be added.

The following are the solutions recommended:

a. Potassium carbonate	1
Distilled water	10
b. Pyrocatechin	1
Distilled water	50

When soft, harmonious effects are desirable, mix for use:

Solution *a.*	20
Solution *b.*	3
Water	60

The exposure should be a little longer than with pyrogallol.

After development the picture is fixed in the usual manner. If the acid fixing bath be used the color tends to the yellow or becomes blacker.

If vigorous diapositives are wanted, then the exposure must be short, and one should compound the developing solution with a larger dose of pyrocatechin; thus:

Solution *a.*	20
Solution *b.*	10
Water	60

Bromide is seldom necessary; it acts with great energy with these developers. The solutions do not keep when they have been once used.

METHOD OF PREPARING AND KEEPING SENSITIVE PAPERS.

Prepare the following solutions:

No. 1.

Distilled water	3600
Silver nitrate	300
Sodium nitrate	150
Sugar	15

No. 2.

Distilled water	300
Silver nitrate	60
Sodium nitrate	30
Sugar	7

The first solution serves always. The second is made at the moment of operating, and is employed to strengthen the first for sensitizing thirty-six sheets of paper.

For use one adds to the first solution 60 parts of the second, and on this the paper is floated during four minutes, then dried in the dark.

After sensitizing four sheets, 30 parts of the second solution are added to the first, and one proceeds to sensitize four more sheets, when the first solution is again strengthened as just said. By operating in this manner the volume and concentration of the sensitizing solution always remain the same, and consequently each sheet of paper is prepared in the same condition.

To keep the bath colorless, it is agitated with a small quantity of kaolin after sensitizing all the sheets of paper actually wanted for use, and it should be decanted when again wanted for use.

The sensitive paper keeps well (but for not over fifteen days) in a tin cylinder containing calcium chloride. To keep it for a longer period one immerses it in a solution of

Water	3000
Citric acid	150

This process was published in *Photographisches Archiv.*

OBITUARY.

PROFESSOR STAS.

PROFESSOR STAS, the renowned chemist, died in Brussels, Belgium, December 16th, 1891.

He was not a photographer himself, but his researches on the haloids of silver made him known to all photographers. One of his most important discoveries was the existence of bromide of silver in different modifications, the most sensitive of which

is that in powdery-granular form, and is only employed in the making of gelatine emulsion. The discovery became generally known a good while after Bennet and Dr. Maddox had introduced emulsion plates, but to Stas belongs the credit of originating the highest sensitive plates.

EDITORIAL NOTES.

We wish to call the attention of the readers of The Times to the "exhibition illustrating the technical methods of the reproductive arts from the fifteenth century to the present time, with special reference to the photo-mechanical processes," now open in the Museum of Fine Arts, Boston, which will close March 6th. When we say that the resources of Harvard, Columbia, and the National Museum at Washington, besides the private collections of Mr. S. R. Koehler (who arranged the exhibition) and others, have been drawn upon, some idea of the importance of the affair may be conveyed.

Undoubtedly, so complete and representative an exhibition was never before brought together. While deferring a detailed critical notice to a later issue, we cannot too strongly urge every one who is desirous of informing himself on the history of the subject, and the relation that photography holds to other reproductive arts, to make it a point to attend. If that is impossible, the next best thing will be to obtain a copy of the catalogue made by Mr. S. R. Koehler, whose copious notes on the 734 titles and systematic classification of the whole make a very valuable contribution to the literature of the graphic arts; the cost is only 50 cents, and we presume that it will be forwarded on application to the Museum authorities.

We have lately called the attention of the amateur and professional photographers to certain failures resulting from the influence of cold on the development of the latent image, advising one to keep in winter the developing solution at the normal summer temperature of water; that is, at from 60 to 70 degrees Fahrenheit. Indeed, this is quite important, for the reasons we have stated, and also for keeping in solution the developing agent, which might be deposited by the crystallization originated from the lowering of temperature in concentrated stock solutions, and that in quantity so much the greater as the temperature would be the lowest.

The order of solubility of the new reducing and developing agents is as follows: Hydroquinone, eikonogen, para-amidophenol. When dissolved in water at common temperatures they crystallize easily in the cold season when the temperature is near 40 degrees Fahrenheit, or lower, according to the degree of concentration. A solution of para-amidophenol, with caustic potassa and sodium sulphate, we found a week ago to have deposited crystals which, without knowing the form and color of the crystals, or resorting to analysis, one would have rightly considered as formed by the compound in question, according to an elementary law in chemistry stating that the less soluble salts are displaced by those which are more soluble. As to pyrogallol, being very soluble in cold water, it cannot be deposited from its photo-solution at the lowest temperature of our winters. If crystals are formed, they consist of sodium or potassium carbonate and sodium sulphite. The latter is the more soluble of these salts.

The conclusion of all this is obvious.

Here is an iron printing process of a great simplicity to obtain black proofs:

Float a sheet of paper for an instant on a solution of iron chloride and citric acid, each in the proportion of two and a half per cent. of distilled water. Dry in the dark, expose under a negative cliché, and on its removal from the printing frame immerse the proof in a solution of gelatine, colored with india ink or a similar substance. The coloring matter *takes* only on the parts acted on by light.

This process is similar to that for coloring carbon prints by certain dyes, chromium oxide acting as a mordant.*

All the European photographic journals reprint from the *Moniteur de la Photographie* a process to clear negative clichés from a persistent yellow fog. This process is not new; it has been long ago published in The Times, both for clearing, intensifying or reducing the clichés. It consists of bleaching the image in a solution of

Water	1000
Bichromate of potash	50
Hydrochloric acid	15

and, after a thorough washing to eliminate the bichromtae, to blacken the image, which now consists of silver chloride, by an old and very diluted solution of hydroquinone. An old eikonogen or para-amidophenol developer will answer quite as well. Pyrogallol was first employed for the same purpose.

*See "Photographic Reproduction Processes," by P. C. Duchochois. New York: Scovill & Adams Co.

DR. SHNAM indicates copper acetate as a reagent to recognize the composition of a ready made developer. If by adding a few drops of a solution of this salt to the developing solution, the liquid be tinged yellow, it contains hydroquinone; if greenish-blue, it is eikonogen; pyrogallol forms a precipitate; the solution of hydroxylamine remains clear.

THE brilliant éclat of photo-prints, obtained by squeezing them into contact on a polished surface upon which they are allowed to dry, is impaired when the prints are wetted for mounting. To prevent this, that is, to preserve the brilliancy, it suffices to brush over the back of the proofs a solution of gum adragant, which is allowed to dry at the same time as the proof; then, for mounting, wet the card and upon it lay the proof previously stripped off from its polished support, and, this done, place the whole under pressure.

REVERSAL.

[THE perplexing question, which has agitated the mind of so many photographers and scientists, as to how branches of lightning are represented dark in a photograph, when the main stroke is white (see illustration opposite page 129, "American Annual of Photography for 1891"), is very well explained in the following paper by Mr. Henry Sutton, which was read before the London Camera Club]

In opening the subject of reversal this evening, it would be well to understand that a reversal negative and a reversed negative are different things, a reversal negative being the result of what has been termed reversing action; it is produced direct from a negative, and is reversed as regards right and left. A reversed negative is reversed as regards right and left, but is produced from a positive.

We all know that over-exposure produces flatness owing to the difficulty of obtaining density in the high lights; it is easy to conceive an exposure sufficiently prolonged as to cause an entire loss of the high lights. If in such an exposure the shadows have not received sufficient light to produce a strongly developable image, the result on fixing would be an extreme case of over-exposure, as understood by a thin image; but if during development stray light obtains access to the plate, the shadows fog and we have reversal.

The original high lights, as we shall see this evening, are both undevelopable and insensitive, therefore do not fog. We may produce this fog by preliminary, concurrent, or supplemental exposure; in all my experiments it is deliberately produced in order to supply the necessary reduction to those parts of the plate not rendered undevelopable by oxidation.

In a reversal exposure this oxidation is regulated by the interposed negative or positive; therefore, when we fog or expose the still sensitive portions of the plate, a reduced image is formed capable of being developed.

In our experiments this evening the reduction will be produced by concurrent exposure; that is, while we are oxidizing through the shadows of the interposed negative, we are fogging or reducing through the high lights with stray light.

In order to illustrate this matter, I will expose a plate to magnesium light a sufficient time to enable oxidation to produce the undevelopable and insensitive state; another plate will be taken, and the pair exposed in contact with a negative. I think we shall find one plate give a reversal and the other show it is really undevelopable and insensitive. The insensitive or oxidized plate will show the state of the shadows in the reversal plate, this latter having a gradation of oxidation and the rest of the plate fogged. The insensitiveness may be only comparative, for though the plate has still the power of producing a print-out image, I have not succeeded in producing a second developed reversal from it. Captain Abney has shown the undevelopable state is due to oxidation.

EXPERIMENT.

Although it is possible to produce an exact reversal, I do not think these physical reversals are of much practical account, from the fact that a very exact balance in the two factors of reduction and oxidation is necessary; if the latter be in the least overdone, the delicate tones are oxidized out of existence, or, if the reduction has been too much, delicate tones are fogged and disappear; under these conditions the gradations are quite false. In some cases reversal improves the result, subjects having too many tones may have the middle tones obliterated. Hard negatives are reproduced perfectly.

I have here a reversal negative, the print from which represents the sixth photographic image. The cloud and cattle negatives were separately taken, and a combination glass positive made from the two; from the positive a contact negative was made, and from this a reversal negative, then from the latter the print.

One of the small prints represents the fifth image, the series being original negative, glass

positive, contact negative, reversal negative, and platinum print.

The villa print also represents the fifth image, the series being original negative, silver print, camera negative, reversal negative, platinum print. The river print series runs, original negative, reversal negative, platinum print

In producing the four prints, nineteen photographic images have exerted their influence, rather a severe ordeal for the original images to pass through; it is unnecessary to say there is some loss. While these are being passed round, I propose making a reversal negative from an ordinary negative.

Experiment.

When making experiments of this kind, the natural conclusion one arrives at is, that dark flashes seen on photographs of lightning are the result of reversal.

In Australia we have some of the finest electric storms, and there I have seen many flashes, the impression of which, on the eye, was of greater duration than would be due to persistence of vision.

On one occasion I was fortunate in observing a brilliant thread, suspended between two clouds, for several seconds; I mention this to show there are discharges of exceptional duration.

The light from one grain of burning magnesium is sufficient to produce reversal, as we shall see by experiment this evening. So we may consider a lightning flash having a similar actinic or photographic value should do the same. This value may to due to a discharge of exceptional duration, or to a brilliant flash caused by a maximum electromotive force with a minimum quantity of matter in the path of the flash.

One evening I was observing a display of electric discharges in a large cloud situated on the northern horizon. These discharges were accompanied by sympathetic discharges in a cloud on the southern horizon. The northern cloud was approaching, and I concluded that should the clouds be at different altitudes, a difference of air currents might enable the one to overtake the other.

A more rapid movement of the northern cloud was soon noticed; a camera fixed up and carefully focused on the southern cloud, by aid of the local discharges. All being in readiness, and the shutter of slide drawn, but cap still on the lens, I waited events. When the northern cloud reached the zenith it began to show considerable symptoms of electric excitement at the edges. Knowing this to be my opportunity, the lens was uncapped, and in about half a minute a pair of brilliant flashes darted from the zenith to the southern cloud. I estimated the duration at over one second.

The plate was immediately developed, but not a sign of the flashes. I expected to find a pair of curly black streaks, right across the plate; instead there appeared a very fair cloud negative, and the black outlines of some buildings low down in the field; these buildings enable me to verify the position of the camera, which, being attended to, proved the field must have included the flashes. I could never account for getting the clouds and not the flashes, until the matter came to mind whilst making the reversal experiments, and now think the exposure reached the transition stage described in Experiment 14 of my paper in the *Club Journal* for September. I give these particulars to show every care was taken in the endeavor to photograph the pair of flashes.

There may be points which, with our present limited knowledge of the dark flash, seem difficult to reconcile; still. I think, we are pretty safe in accepting reversal as the cause.

One of these points is stated by Professor Burton, in *Photography*, September 17, namely, the crossing of dark and bright flashes being bright. This is probably due to an electrolytic creeping action of the deposit across the dark flash during development, and not due to the reducing action of light. If the dark flash be due to the undevelopable state produced by oxidation, then at the point of crossing the difference in condition at the junction between the reduced and oxidized flashes is probably sufficient to produce a difference of potential, that may determine an electrolytic action. A plate brought to the insensitive state by oxidation should form a very fair couple with a plate simply reduced; it is difficult to conceive it otherwise, for where there is reduction of oxidation we invariably find electric energy, and when we find electric energy under suitable electrolytic conditions, there we find reduction and oxidation.

An illiterate woman, who wished to be thought learned, went to hear a lecture on chemistry, in which the words hydrogen and oxygen frequently occurred. "Pray, sir," to the gentleman next her, "what is the difference between oxy-gin and hydro-gin?" "Oxy-gin, madam," replied he, "is pure gin; hydro-gin is gin and water."

Photographic Pointer.—Photographer—That is certainly a good picture for an amateur; very good. How did you manage to get such a pleasant expression on the gentleman's face?

Amateur—I told him I wasn't going to charge anything. —*New York Weekly.*

THE CHEMISTRY OF PHOTOGRAPHY.

(*Continued from page* 56.)

CHAPTER II.

THE CHEMICAL ACTION OF LIGHT—NATURE OF THE LATENT IMAGE.

THE action of light upon the salts of silver is perhaps the most difficult and vexed question in the chemistry of photography. Exposure to sunlight for even the ten-thousandth part of a second produces a change in the bromide of silver with which our dry-plates are coated. With short exposures like this, no *visible* change is produced; but by the action of certain chemicals, the invisible, latent, or photographic image can be *developed*, and made visible as a dark-colored substance, indistinguishable from the latent or the developed image, by all the tests which we are able to apply, is obtained—is "printed out," as we say—when the plate is exposed for a much longer time (half-an-hour, or more) to the action of light. It has happened to us more than once, that, after a very long exposure, a portion of the image has been visible as a dark patch when the plate has been removed from the dark-slide.

The question which we have now to consider is, what is the chemical composition (1) of the latent image, (2) of the developed image, and (3) of the printed-out image?

It may be assumed—though it has not been absolutely proved—that these three are of the same nature, and the same chemical composition. Eight or ten theories have been advanced, and we shall proceed to give some account of each.

The substances which we shall consider principally, or those affected by light, shall be the chloride, the iodide, and the bromide of silver. And it may be taken as fairly certain that the action of light upon silver iodide, upon silver bromide and upon silver chloride, will be similar in nature and in effects. These three salts of silver are called the *silver haloids*, or the haloid salts of silver. Silver fluoride (Ag F) is also a silver haloid; but as it is not used in photography we need not notice it here.

The Effect of Light upon the Silver Haloids is to produce Metallic Silver.—Scheele and Guthrie's Theory.—The first man to study the chemical effect of light upon any silver salt was Charles William Scheele, a Swedish chemist, in the year 1777. He writes:*

"I mixed as much of distilled water with well edulcerated horn silver as would just cover this powder. The half of this mixture I poured into a white crystal phial, exposed it to the beams of the sun, and shook it several times each day; the other half I set by in a dark place. After having exposed the one mixture during the space of two weeks, I filtered the water standing over the *luna cornua*, grown already black; I let some of this water fall by drops in a solution of silver, which was immediately precipitated into horn silver.

"I precipitated a solution of silver by sal-ammoniac; then I edulcerated and dried the precipitate, and exposed it to the beams of the sun for the space of two weeks, when the surface of the white powder grew black, after which I stirred the powder, and repeated the same several times. Hereupon I poured some caustic spirit of sal-ammoniac on this, in all appearance, black powder, and set it by for digestion. This menstruum dissolved a quantity of *luna cornua*, though some black powder remained undissolved. The powder having been washed was for the greater part dissolved by a pure acid of nitre, which by the operation acquired volatility This solution I precipitated again by means of sal-ammoniac into horn silver. Hence it follows that the blackness which the *luna cornua* acquires from the sun's light is silver by reduction."

Converting Scheele's terms into those of the present day, we can express the results which he believed he obtained by exposing silver chloride (horn silver or *luna cornua*) to the light by the following equation:

AgCl	=	Ag	+	Cl
Silver Chloride	*produces*	Metallic Silver	*and*	Chlorine.

The selection of silver *chloride* by Scheele for this experiment will easily be understood if we remember that neither silver *bromide* nor silver *iodide* were discovered till many years after. What the great Swede did was to select the most sensitive substance to light known to that age, and to endeavor to find out what change—if any—was produced by light in its chemical composition. His idea of exposing the silver chloride to light while in distilled water, was decidedly neat. He reasoned that if any substance were given off or detached from the chloride by the action of light, that substance would be arrested by and become dissolved in the water. His theory proved correct. When he poured off the clear water and added it drop by drop to a "solution of silver" (*i. e.*, to a solution of silver nitrate), he obtained silver chloride (= horn silver) once more. What had happened?

In the first place, the silver chloride had suffered decomposition. Chlorine was liberated (but

* "Traité de l'Air et du Feu."

whether the *whole* of the chlorine or only a *part* of it is a question which has been debated ever since). Now when chlorine is liberated in water, and is at the same time exposed to sunlight, the chlorine decomposes the water, and oxygen gas is set free.

$$\underset{\text{Chlorine}}{Cl} + \underset{\text{Water}}{H_2O} = \underset{\text{Hydrochloric Acid}}{HCl} + \underset{\text{Oxygen.}}{O}$$

(*and* — *produce* — *and*)

Of course only a very small quantity of hydrochloric acid is formed, and this remains dissolved in the water. The water being then added to a solution of silver nitrate we again get a chemical change—a double decomposition in fact—and silver chloride is once more formed.

$$\underset{\text{Hydrochloric Acid}}{HCl} + \underset{\text{Silver Nitrate}}{AgNo_3} = \underset{\text{Silver Chloride}}{AgCl} + \underset{\text{Nitric Acid.}}{HNO_3}$$

(*and* — *produce* — *and*)

In the second paragraph quoted Scheele describes a confirmatory experiment. Let us represent his work by equations.

(1) He precipitates a solution of silver by sal-ammoniac.

$$\underset{\text{Silver Nitrate}}{AgNO_3} + \underset{\text{Ammonium Chloride}}{NH_4Cl} = \underset{\text{Silver Chloride}}{AgCl} + \underset{\text{Ammonium Nitrate.}}{NH_4NO_3}$$

(*and* — *produce* — *and*)

(2) He exposes the precipitate of silver chloride to sunlight.

$$\underset{\text{Silver Chloride}}{AgCl} = \underset{\text{Silver}}{Ag} + \underset{\text{Chlorine.}}{Cl}$$

(*produces* — *and*)

(3) He soaks the black powder (a mixture of unaltered silver chloride with black silver) in "caustic spirit of sal-ammoniac" (= ammonia). This is able to dissolve silver chloride; but a black powder remains undissolved.

(4) This black powder Scheele considers to be metallic silver, which has been set free by the action of light. To prove that it *is* silver he adds to it some "pure acid of nitre" (= nitric acid) by which it is dissolved.

$$\underset{\text{Silver}}{2Ag_2} + \underset{\text{Nitric Acid}}{6HNO_3} = \underset{\text{Silver Nitrate}}{4AgNO_3} + \underset{\text{Water}}{3H_2O} + \underset{\text{Nitrogen Trioxide.}}{N_2O_3}$$

(*and* — *produce* — *and* — *and*)

(5) He finally adds sal-ammoniac to the "solution" so obtained.

$$\underset{\text{Silver Nitrate}}{AgNO_3} + \underset{\text{Ammonium Chloride}}{NH_4Cl} = \underset{\text{Silver Chloride}}{AgCl} + \underset{\text{Ammonium Nitrate.}}{NH_4NO_3}$$

(*and* — *produce* — *and*)

Thus the circle is completed, and Scheele finished with the same substance (silver chloride) as he began with. From this he not unnaturally concluded that the effect of sunlight on silver chloride is to reduce it to metallic silver.

Guthrie Supports Scheele's Theory.—The first man to attempt to demonstrate, quantitatively (*i. e.*, by actually *weighing* the substances produced) the action of light upon chloride of silver was the late Professor F. Guthrie.* His results came near (but hardly sufficiently near) the actual results which should be obtained if silver chloride is completely decomposed by light into metallic silver and chlorine. He found that the silver chloride darkened rapidly when covered with pure and dry benzole (a liquid which contains no oxygen); and he writes: "The rapid blackening which the chloride here underwent proved the presence of oxygen to be unnecessary." This should be remembered in connection with the oxychloride theory of the latent image.

The Latent Image not Destroyed by Nitric Acid.—A rather powerful argument *against* the theory that the latent image consists of metallic silver, is furnished by the fact that the image is not destroyed when an exposed plate is bathed in the strongest nitric acid which can be used without affecting the gelatine.

Now nitric acid readily attacks and dissolves metallic silver; but it has no effect on silver chloride. It is found that if silver chloride be exposed to light in a vessel containing nitric acid, the chloride blackens readily. If the black substance formed be metallic silver one would imagine that it would be attacked by the nitric acid as rapidly as it was produced.

The Latent Image Considered as an Oxychloride, Oxybromide, or Oxyiodide.—The nature of the latent image early attracted the attention of that prolific worker, Robert Hunt. In his "Researches on Light"† he writes: "I am inclined to believe that the first action of the solar ray (upon silver chloride) is to liberate one-half the combined chlorine, which is very readily, moisture being present, replaced by oxygen.

W. Jerome Harrison.

(*To be continued.*)

Correspondence.

SENEX REPLIES TO MR. NEWTON.

To the Editor of THE PHOTOGRAPHIC TIMES.

DEAR SIR:—Replying to Mr. Henry J. Newton's letter which is published in the January 22d issue of THE PHOTOGRAPHIC TIMES, I should like to say that I did not omit my name from the article signed "Senex," which he objects to so seriously, from any feeling of cowardice, and I think that those who know me will not accuse me of being cowardly, whatever else they may think of me. I simply left my name from the communication because I merely quoted from well-established authorities, and, as a consequence, no signature was necessary or of any interest to the reader, as I thought.

* His paper was published, I believe, in 1857. It has been republished in the *British Journal* for 1885, p. 393.

† Second edition, 1854, p. 80.

I must say, I think Mr. Newton's reply is rather an unfortunate effort to come out victorious from a conflict which exists only in his own imagination. I had no intention to personally contradict him, leaving that entirely to Martin, Berzelius, Meldola, and others. If he is so very anxious to "strike" some one, let him strike these authorities. I simply quoted them.

But, to return to his article, which was the occasion of my letter, I wish to repeat that it is the passage " * * * and I do not believe such exists * * * " which seems to me to be worth commenting upon.

In his letter Mr. Newton evades the point under discussion by stating that the cardinal point of that part of his article is the following sentence: "I am writing now on egg albumen, which in some respects differs from serum albumen in its power of forming compounds," without, however, at all specifying or qualifying that power.

The chemistry of albumen and this compound is as difficult as it is interesting, and as the matter has been brought before the public, any information on the subject of albuminoids, drawn from Mr. Newton's own treasure of knowledge, would be thankfully received by chemists as well as by photographers.

On the toning with the salts of lead I have nothing to say here. Wm. X., whose opinion I share in this matter, will probably speak further on that subject. And right here I wish to correct the impression which Mr. Newton seems to be laboring under, that Wm. X. and Senex are one and the same person. Wm. X. may speak for himself. He and I are certainly not the same person.

From a personal regard for Mr. Newton, I regret extremely that he should receive a purely impersonal letter of criticism in so wrathful a spirit. He should remember that he who writes for the public thereby subjects himself to criticism, and so long as that criticism is conducted with a view to enlarging our knowledge, it should be welcomed by all who seek to instruct.

Yours truly,

Charles Ehrmann.

New York City, January 25th, 1892.

WM. X. REPLIES.

To the Editor of THE PHOTOGRAPHIC TIMES.

DEAR SIR:—When one discusses on practical or theoretical matters one should abstain from personal criticism, even in answering an anonymous but polite letter. Knowing for so many years Mr. Newton as a well-bred gentleman, I wonder how he could have forgotten his usual urbanity.

Whatever it may be, my queries about the theory of the process of toning without gold remain without answer. I reiterate them.

What is the action of lead nitrate in the fixing bath? Does the compound formed act as a toning agent?

How is *sulphuration* avoided?

What is the action of silver nitrate on albumen, whether from eggs or blood, serum albumen, both acting in the same manner with the soluble salts of the heavy metals?

Yours respectfully,

P. C. Duchochois,
alias Wm. X.

NEW YORK CITY, January 26th, 1892.

To the Editor of THE PHOTOGRAPHIC TIMES:

DEAR SIR:—The following Kodaks were stolen from our store Jan 22d: 1 size No. 2, numbered 19,770; 1 size No. 3 Jr., numbered 6,729; 1 size No. 4 Jr., numbered 6,598; 1 size No. 4, number unknown. Should above cameras come to you please hold same and notify us.

Yours truly,

Buchanan, Bromley & Co.

PHILADELPHIA, January 23, 1892.

Notes and News.

E. B. Neck, Photographer, of Cleveland, Ohio, has lost considerable stock by fire.

Addie A. Emerson, of Lowell, Mass., has filed a certificate to do business as a photographer.

Heald & Co., photographers, of Providence, R. I., have dissolved partnership.

H. E. Bucher, photographer, of Wilmington, Del., lost some property by fire, which, however, was fully insured.

N. P. Brown, of Tecumseh, Mich., has sold out his photographic business.

Geo. I. Pruden, Cortland, N. Y., was burned out, losing $2,000 worth of property, of which $1,500 was covered by insurance.

"The King."—"I am much taken with the 'Almanac.' I consider it the king of almanacs," writes John Clapperton, of Scotland.

The colossal statue of the Republic, which will stand on a pedestal rising from the basin in front of the administration building, is being modeled in Paris by Daniel C. French, the New York sculptor. It will be a female figure seventy-five feet high.

Prof. Ehrlich, the well-known crayon and pastel artist, has recently established a photographic atelier on Sixty-sixth Street, between Lexington and Third Avenues. Surrounded by a staff of excellent technical photographers, and aided by his own artistic skill, he is enabled to compete successfully with the first-class galleries.

The Professor has sent us a collection of very fine cabinet-size portraits. His miniatures in oil are very beautiful.

The Lynn Camera Club gave an unique entertainment the other evening. It was an illustration of Paul Revere and his midnight ride, by means of lantern slides from photographic negatives. Mrs. F. W. Breed read the accompanying lecture, and the entertainment was thoroughly enjoyed by a large audience. The souvenir issued by the Lynn Camera Club on this occasion contains the poem by Longfellow, with an ingenious introduction by some member of the club, which gives a photographic flavor to the whole thing.

Composition of Chlorophyll.—Mr. N. Monteverd has made a series of experiments for the purpose of determining the number of distinct pigments present in an alcoholic solution of chlorophyll. If an alcoholic extract of green leaves is treated with baryta water and the precipitate extracted with alcohol, the solution has a yellow color. If this is again shaken with petroleum ether after the addition of a few drops of water, a separation takes place of the yellow pigments, the petroleum ether having taken up the carotin, identical with the coloring matter of the carrot, together with the green pigment, while the alcohol contains the xanthophyll. The pigments contained in the petroleum ether are termed by the author "upper pigments," those contained in the alcohol "lower pigments." By careful manipulation the whole of the green pigment (upper green pigment) can be removed by treatment with alcohol from the petroleum extract, leaving behind a golden-yellow solution of carotin; this "upper green pigment" is not capable of crystallizing. The alcoholic solution contains, in addition to xanthophyll, a "lower green pigment" which crystallizes in tetrahedra, hexagons or stars, but most usually in irregular forms. The author believes that living leaves contain only the "lower green pigment," the "upper green pigment" being a transformation product resulting from the action of boiling water or alcohol.—*Phar. Jour. Trs.*

The Aluminum Light.—A very intense light, such as is required for photographic or occasionally for medical purposes, may, as is well known, be readily obtained by burning magnesium ribbon, which has, however, the disadvantage of being somewhat expensive. An excellent substitute has been found by a French chemist, M. Villon, in aluminum, which is about a third of the price of magnesium, and which may be utilized in the same manner by burning it in a spirit lamp, or, if a flame of much more intense brilliancy is required, in a coal, gas, or spirit flame supplied with a jet of oxygen. In these it burns without emitting fumes, in which respect it is superior to magnesium. The light given by aluminum has a high actinic power—nearly as high, indeed, as that of magnesium. The most convenient way of obtaining a very intense light, according to M. Villon, is to use a lamp provided with a jet of oxygen at the center of its flame, into which powdered aluminum mixed with a quarter of its weight of lycopodium and a twentieth of its weight of nitrate of ammonium can be projected by means of a tube furnished with an air ball. This gives an exceedingly intense light, without smoke. A mixture of aluminum powder with chlorate of potash and sugar can be ignited, giving an intense light, by means of gun-cotton, but is somewhat dangerous. Probably the best plan, says the *Lancet*, for medical photography, or for laryngoscopic and auroscopic and other demonstrations, would be to burn a ribbon of aluminum in an ordinary spirit lamp. Of course, if oxygen and an oxy-hydrogen, or an oxy-alcoholic, lamp were at hand, a much more intense light could be obtained.—*Scientific American.*

"I have the 'American Annual of Photography' for 1892, and find it full to the brim with new ideas."—L. L. RUNDELL, Pelican Rapids, Minn.

The Editorial Table.

Photographic Mosaics. New York: Edward L. Wilson, editor and publisher.

This ever-popular year-book comes to our table once more, possessing all the characteristic features which has given it the success which it has attained during so many successive years of publication.

The editor's preface this year, as heretofore, is the chief feature of the book, occupying about one-third of the entire book. Other features are the valuable articles by H. P. Robinson, Alfred Steiglitz, Prof. Chas. Ehrmann, Joseph P. Brown, U. S. A., W. H. Sherman, Prof. C. H. Bothamley, J. F. Ryder, Victor Schumann, and Prof. W. K. Burton.

Some novelties of 1891 are included at the end of the book; also a few handy tables of weights and measures.

The pictures are more numerous than ever before, for the most part being reproductions of excellent negatives by prominent photographers, by means of the various half-tone processes. The price remains the same as heretofore, 50c. post-paid.

The Optics of Photography and Photographic Lenses, by J. Traill Taylor, London; Whittaker & Co.

A work on Photographic Optics by the editor of the *British Journal of Photography*, and late editor of THE PHOTOGRAPHIC TIMES, is sure to take its place at once as an authority, for Mr. J. Traill Taylor has long been known as an expert on all subjects relating to photographic lenses.

As the preface truly states, the work before us is not theoretical, but practical; and is not intended for the makers, but the users, of photographic lenses. Much which composes the book has before appeared in print, being taken from the *British Journal of Photography* and its "Almanac," from contributions to the Society of Arts, and other societies, and also from THE PHOTOGRAPHIC TIMES.

There are, however, special chapters written expressly for this work, and in every case the other matter has been thoroughly revised, and brought up to date.

The book comes to us cloth bound, "with the author's compliments." We do not know its price, but will undertake to supply any of our readers with it, who order the book of us, at the publishers' price.

Die Photographie mit Bromsilber Gelatine und die Praxis der Momentphotographie, Vol. III., by Lieut. Ludwig David and Charles Scolik, with 12 artistic supplements and 449 illustrations and diagrams printed in the text, comes to us from the publisher, Wilh. Knapp, Halle, a/s.

This highly interesting and instructive work ends with the third volume. It is entirely devoted to instantaneous photography, and treats the subject most exhaustively; in fact, no other work exists on that branch of the art-science so well written and so complete.

A variety of hand cameras are minutely described, shutters of different construction, and objectives adapted for quick work. Very interesting is the chapter on flash light photography.

The "Pacific Coast Photographer," edited by Morgan Backus, is the name of the new photographic journal to be published early in February.

Removed.—As announced in our advertising pages, George Murphy, the enterprising dealer in photographic materials, has removed from his old stand at 2 Bond Street to 57 East Ninth Street, New York City, where he has a new building, only six doors from Broadway, with increased room, and splendid packing and shipping facilities.

Frederic Dean's Lecture on the history of music continues to attract a great deal of favorable attention in conjunction with the Scharwenka Conservatory of Music, at Behr Bros.' Hall, 81 Fifth Avenue, New York City. The lecture occurs every Saturday morning at 12 o'clock, single admission being 50c. Mr. John Lavine is manager.

The Photographic Image. By P. C. Duchochois. This is a book of wider scope, and, therefore, of increased size, its sub-title describing it as "a theoretical and practical treatise of the development of pictures in the gelatine, collodion, ferrotype, and silver bromide paper process." It is a masterly work and fully up to date, dealing as it does with such a recent developing agent as para-amidophenol; but a book of more than 200 pages should certainly be provided with an index. The omission is the only fault we have to find with it.—*Photo News.*

New Year's number of THE PHOTOGRAPHIC TIMES comes to our table a veritable mine of photographic lore. An illustrated weekly journal devoted to the art, science, and development of photography. The present year promises to be one of exceptional interest to the amateur as well as the expert. Every issue fully illustrated, and with at least one full-page picture. The number before us contains an excellent phototype of England's "Grand Old Man." A staff of twenty-five well-known artists and art writers will contribute series of articles on the various subjects pertaining to this interesting art. In the light of recent inventions in the line of amateur photographic outfits, there is no excuse for any one so inclined for not possessing a camera. The journal above mentioned will keep its readers fully informed where and what to buy. Various articles will instruct the merest tyro in the mysterious art of developing the negatives. The editorials are of the greatest practical value, as they are the result of actual practice and experience of the staff.—*From the Montello (Wis.) Express.*

Record of Photographic Patents.

467,423. Photograph Gallery Wagon. Thomas J. Merritt, St. Louis, Mo.

467,454. Photographic Camera. James T. Walker, Palmyra, N. Y.

TRADE MARKS.

20,647. Photographic Dry Plates. Harvard Dry Plate Co.

467,696. Flash-light Burner. Sylvester M. Williams, San Francisco, Cal.

Too Strong a Resemblance.—Photographer (to customer who to look at would hurt you)—Now try to look like yourself.

(Noting the effect)—Well, er, h-m; try to look like somebody else.—*Life.*

Queries and Answers.

209 Wm. A. writes: Would you kindly give me through your columns: 1. The method and formula for mounting albumen prints on drawing paper so they will not curl. 2. The best paper to use for blue prints and blue and black lines on white ground. 3. Would not better results be obtained if all chemicals used were C. P.? 4. Would the formulas remain the same if chemicals were so used?

209 *Answer.*—1. Moisten print and paper; as a mountant use S. P. C. "non-cockle;" dry the mounted print face downward, and under slight pressure.

2. The Steinbach medium roll.

3. All photographic formulas prescribe chemicals of utmost purity. That is always understood.

4. Certainly.

210 M. R. C. writes: I have a number of good negatives varnished with S. P. C. negative varnish. Will you kindly tell me, through Notes and Queries, if I can remove the varnish without injury to the negatives, and how?

210 *Answer.*—Soak the negative for from 5 to 10 minutes in absolute alcohol. When the stratum of varnish has softened, remove it with the aid of a camel's hair brush. Finally rinse off two or three times with alcohol, and set the negative up to dry.

211 A. O. E. uses Carbutt Eclipse plates, and has lately adopted the S. P. C. hydrochinone developer in two solutions, but finds it to take an enormously long time to bring out a picture thoroughly. He asks is it the fault of the developer, or what is it?

211 *Answer.*—To explain the matter we advise you to read pages 307 to 309 of "American Annual of Photography," where you will find it distinctly stated how much the time of exposure depends upon the altitude of the sun.

Moreover, all chemical action is very much retarded when the temperature is as low as at present. Your room, plate, utensils, and solutions should not be less than 65 deg. F.

Your developer is all right, although it differs much from that recommended by Mr. Carbutt.

212 C. S. C., of Maine, has made para-amidophenol developer after the formula published in PHOTOGRAPHIC TIMES. When first made it was perfectly clear and colorless, but after having stood in a cold room for two or three days, crystalline needles separated from the solution and deposited at the bottom of the vial.

212 *Answer.*—The formula prescribes the solution to be in concentrated state, but it is assumed to be kept in a temperature of not less than 65 deg. F. At lower temperature the solvent is not capable to retain in solution as much of the substance as it does in higher temperature. We dare say that in the northern part of Maine normal solutions do not keep well in a cold winter.

Remove the solution to a warm room; shake up occasionally, and by degrees the crystals will redissolve.

THE PHOTOGRAPHIC TIMES.

AN ILLUSTRATED WEEKLY JOURNAL DEVOTED TO THE ART, SCIENCE AND ADVANCEMENT OF PHOTOGRAPHY.

Issued every Friday.

W. I. LINCOLN ADAMS, Editor.

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THE PHOTOGRAPHIC TIMES PUBLISHING ASSOCIATION,
423 Broome Street, New York.

Commercial Intelligence.

A LETTER TO THE AUTHOR OF "THE PHOTOGRAPHIC IMAGE."

DEAR MR. DUCHOCHOIS:

I have read with much pleasure your valuable and interesting book on "The Photographic Image," and thank you heartily for it. It is an able statement of a most difficult subject.

Faithfully yours,
W. JEROME HARRISON.

Birmingham, Eng., January 11th, 1892.

A SPECIMEN LETTER.

The following is a faithful copy of a letter recently received by The Scovill & Adams Co.:

Dears Sir

Please send me one of those woden thing that wholes the lense to the camera on the Scholars outfit i broke mine some way i dont know how

Yours Truly
R. S.

P. S. enclose find 5c
if it is to much let it go
and if it is not enough write
and i will send you the ballance

Wilson's "Mosaics" for '92 is out. Order now before the edition is out.

The Photo News Book is ready, and the Scovill & Adams Co. have a full supply. Order now while the supply lasts, as the American edition is limited.

"A Mystery."—"I will only add that the 'Annual' surprises me, as it did everybody else to whom I showed it. How such splendid work—best in that line—could be published at that price is a mystery," writes A. Fasari, of Vicenza, Italy.

"The Christmas Number of THE PHOTOGRAPHIC TIMES is really very fine, and far ahead of anything which is done in this country or on the Continent.

"Please tender Professor Ehrmann my sincerest thanks for the kind way in which he has referred to the 'Chemistry.'

"I try to take great pains with everything I write, and it is pleasant to find that one's work meets with the approval of so thorough and efficient a worker."—W. JEROME HARRISON.

Scovill's New Book Camera, which has excited so much curiosity, is now upon the market, and is certainly a very ingenious instrument.

We reprint the following from the circular which describes this new camera:

In introducing our new book camera we present a photographic instrument which we think will be appreciated by the ladies as well as by the opposite sex. Our chief aim has been to manufacture a camera that is compact and light, and, at the same time, not have the appearance of the ordinary square hand-camera which is now almost universally recognized and avoided. This has been accomplished, after careful study, and we take great pleasure in recommending our new



BOOK CAMERA.

The general appearance of this new camera is of three leather-covered books encircled by a strap. Attached to this strap is a neat handle by which to carry the camera. No lady or gentleman need have any fear that this parcel will attract attention as a camera, for it certainly looks as much unlike a camera as anything can, and it is a very striking counterfeit of a parcel of three *bona-fide* books.

The lens for this ingenious instrument is a rectilinear combination, of the wide-angle variety, with interchangeable stops, made expressly for this camera, and is superior to anything yet offered at its very low price.

The construction of the shutter is after the leaf pattern, and is located between the lens glasses—a feature not used in ordinary hand-cameras. This gives a wider range of angle and does away with the use of a stopper for the lens.

The outfit consists of a camera and lens, with leaf shutter.

One 4 x 5 double film plate holder.

One 4 x 5 single dry plate holder.

One canvas case with shoulder strap (the canvas case is only 10½ x 6 x 7, and will accommodate five extra plate holders). Price of outfit complete, $25.

Business Notices.

LIGHT, COMPACT AND ELEGANT.—The new Gray Hand Camera for cabinet size or for stereoscopic pictures. Time and instantaneous shutter, rising front, and focal capacity of 8½ inches. Address
C. M. BROCKWAY,
33 Worth St., New York.

LESS THAN HALF PRICE.—I have a No. 1 Dallmeyer (10x12) Wide Angle Lens costing $61.50, used only a few times, which I will sell for 30.00.
M. ALEXANDER,
17 Chatham Square, New York.

WANTED.—A No. 4 Kodak. Address
EDWARD DROSTE,
223 W. North St., Canton, Ohio.

FOR SALE CHEAP.—I will sell my Bridges' Photographic Flash Light Diffuser, which cost me $3.50, for $2.75, as I am going out of the business. The Diffuser has never been used. It is exactly as good as new. Address M., care THE PHOTOGRAPHIC TIMES.

FOR SALE.—Newly fitted-up gallery in Newark, N.J., situated on its most important business block. Newark has over 200,000 inhabitants. Reason for selling, sickness of proprietor. Address
LEWIS G. CALLAGER,
773 Broad St., Newark, N. J.

HAND CAMERA WANTED in exchange for 5x8 View Outfit, Elgin gold watch or jewelry. G. G. C., 105 Pike's Peak Ave., Colorado Springs, Col.

FOR SALE.—Leading studio in city of 27,000. Thoroughly equipped; best location; steam heat; large north light. Price, $1,500. BOX 274, New Britain, Conn.

PEACOCK FEATHERS for decorating. Send for dealers' prices. W. J. STANTON,
Box T, Lyndon, Vt.

I WILL SELL

A fine Bardon Microscope, with two lenses, which cost over 650 francs, for half price. This instrument is adapted for high class scientific work and photo-micrography. Or I will exchange it for an 8 x 10 camera and plate-holder.
MAXIMILIAN TOCH,
No. 104 East 81st St., City.

FOR SALE.—The old established gallery (established 37 years) in one of the liveliest young cities in Connecticut. Fine location. Fully equipped for all work to 14x17. Refurnished new throughout in 1890. Cabinets $3.00 and $4.00 per dozen. Rent moderate. For further particulars address BENJ. FRENCH & CO.,
319 Washington St., Boston, Mass.

WANTED.—One No. 3 Gundlach Improved Perigraphic Lens. One No. 3 and 4 Gundlach Improved Rectigraph Lens, or No. 10 Bausch & Lomb Universal.
Desire to exchange No. 2 Kokak, 8x10 Rochester Universal Camera, 5x8 Albion Camera, or exceptionally fine Steinheil Group Lens, No. 5, Series II, fitted with Prosch Triplex Shutter. Address
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IMPROVED KODAKS.—Nos. 3 and 4 Junior and Nos. 4 and 5 folding Kodaks, made for plate-holders as well as roll-holders for films. Mail orders promptly filled by
C. M. BROCKWAY, 33 Worth St., New York.

FLASH-LIGHTS AND HOW TO TAKE THEM! A complete treatise on Flash-Light work. Fully illustrated by Louis Clarence Bennett. Price, 50 cents. Order a copy now from your dealer, or send direct to
L. C. BENNETT, Mercantile Photographer,
69 Centre Street, New York,
for a copy. Developing and printing for amateurs and the trade. Lantern-Slides from your own negatives. Write for prices.

NO FUMING, NO BLISTERS.—Experiment with all the "papers" advertised, and learn. But when you want to make choice, spotless prints use WISSAHICKON SENSITIZED ALBUMEN PAPER. Tone it in compound bath and squeegee on ferro plate, if you like. Send 2 cent stamp for 4x5 sample to JOHN HAWORTH,
641 Arch Street, Philadelphia.

TO REDUCE STOCK.—We offer 8 x 10 Leclair Lenses with Iris Diaphragms, for $22.50. Send for catalogue.
BUCHANAN, BROMLEY & CO., Importers,
Philadelphia.

FOR SALE.—Photographic Printing establishment, equipped with everything necessary for carrying on a large business. Good-will of business of six years' standing included. Address H. G. PEABODY,
122 Boylston St., Boston, Mass.

"THE PHOTOGRAPHERS' BOOK OF PRACTICAL FORMULÆ."—In order to make way for the SECOND EDITION of this popular book we make the following prices on those now in stock: Paper covers, 30 cents each; cloth, 60 cents each. Never before has a book of such great value been offered for so little money.
R. H. MORAN,
396 Broome Street, New York.

A SURE WAY TO PREVENT BLISTERS.—Use Haworth's Sensitized Paper. It won't blister. Spalding has it, so have Obrig Camera Co., and Z. T. Benson.
JOHN HAWORTH, Manufacturer, Phila.

USE EIKONOGEN DEVELOPER. The finest for Aristo Negatives. The finest for Lantern-Slides.
GEORGE MURPHY, No. 2 Bond Street, New York.

LANGILL. 10 East 14th Street, makes all kinds of outdoor negatives. Portrait photographers will do well to consult him when such is required. First prize for Architectural photographs, P. A. of A.

RETOUCHERS! Try "Pearl" Retouching Leads. 15 cents each.
BUCHANAN BROMLEY & CO., Philadelphia.

DO YOU WANT A LENS? Send for Catalogue.
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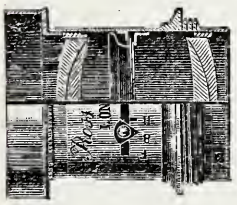
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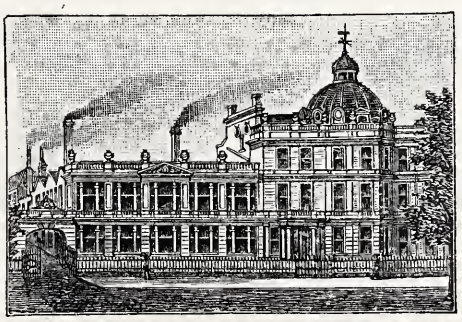
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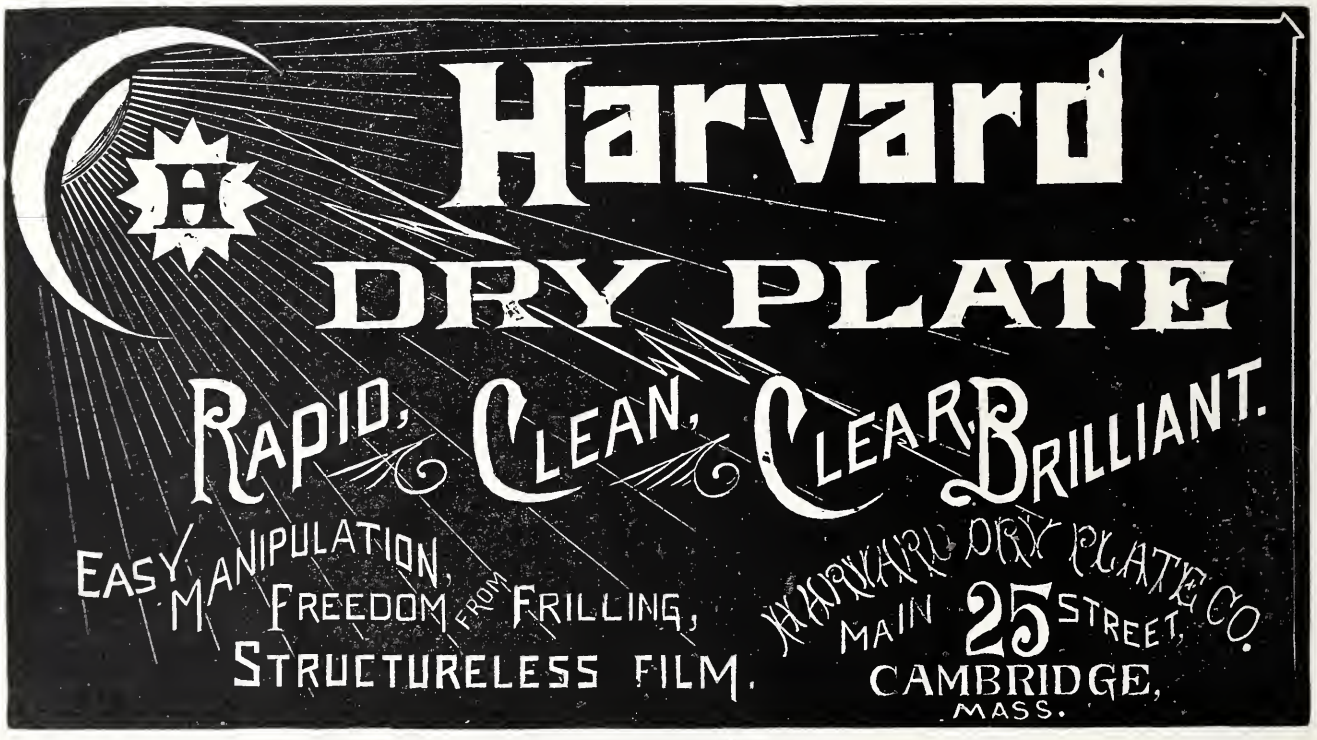
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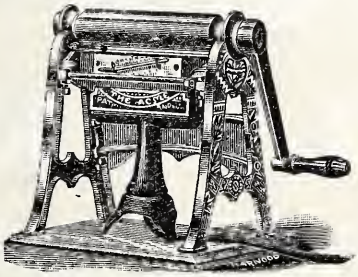
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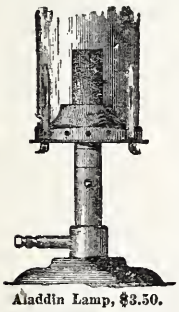
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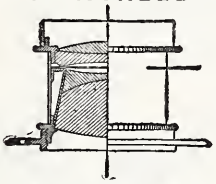
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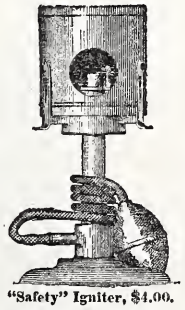
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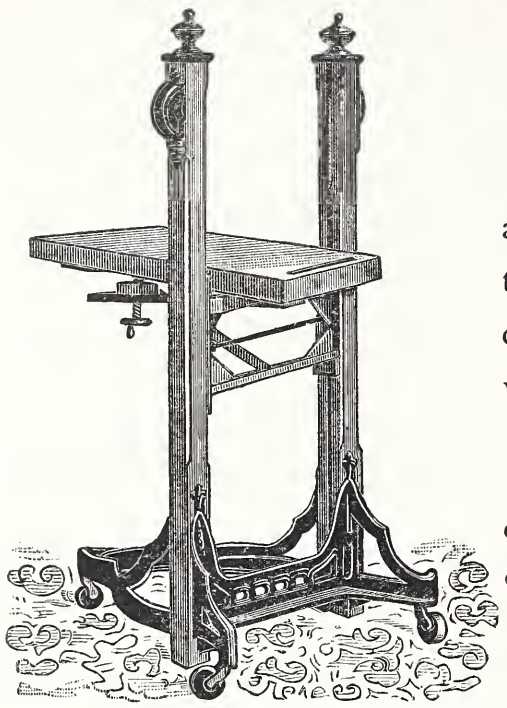
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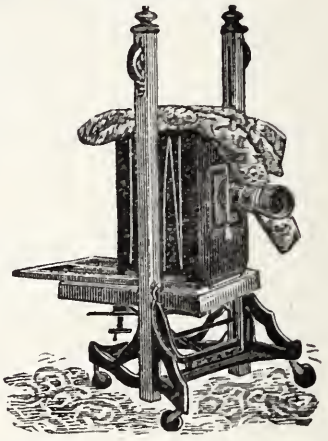
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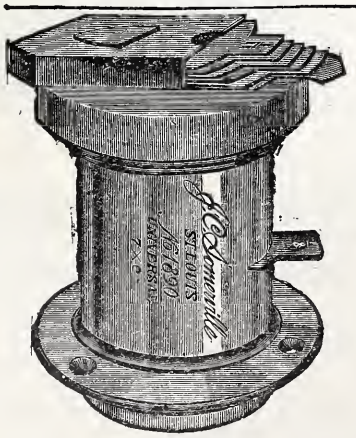
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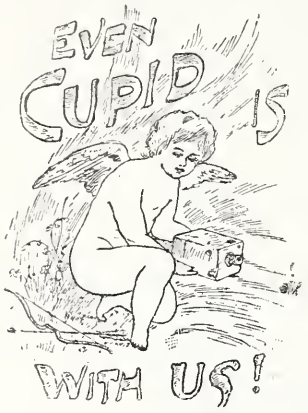
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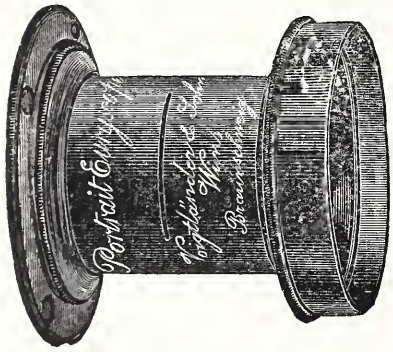
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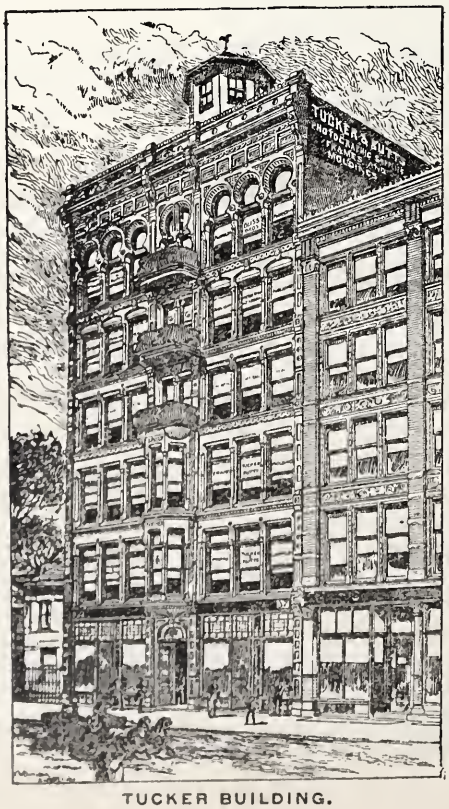
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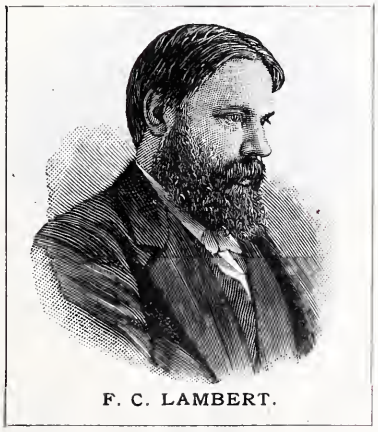
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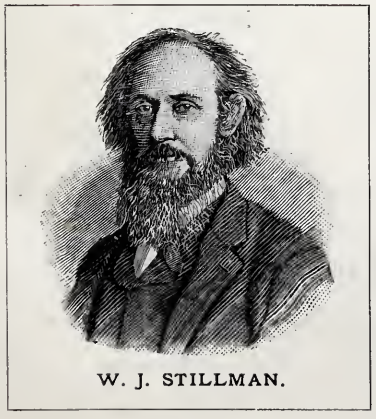
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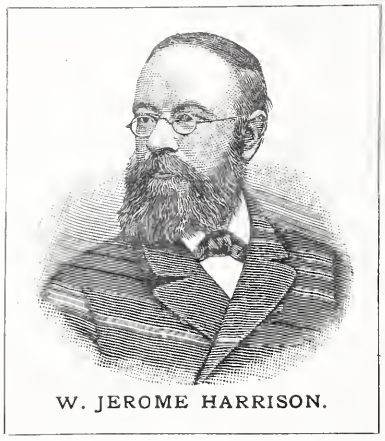


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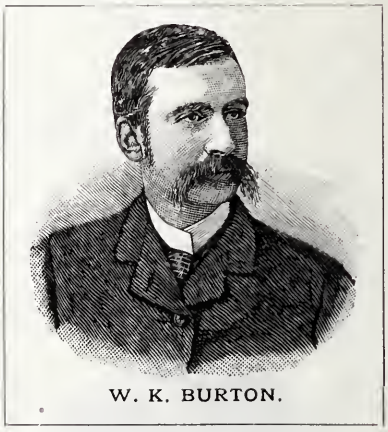
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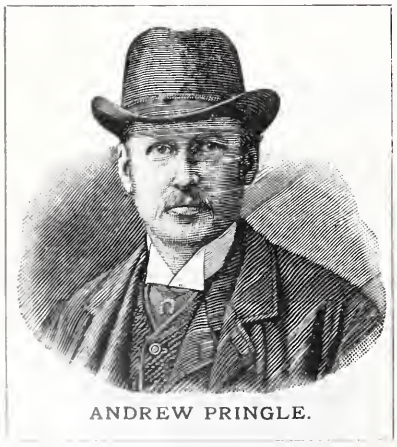
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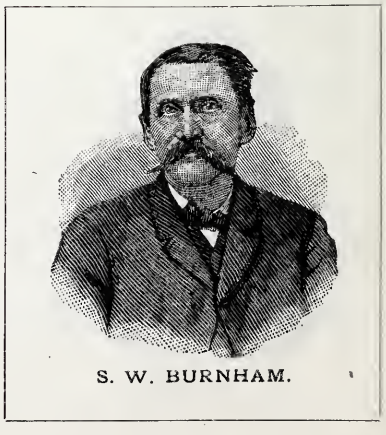
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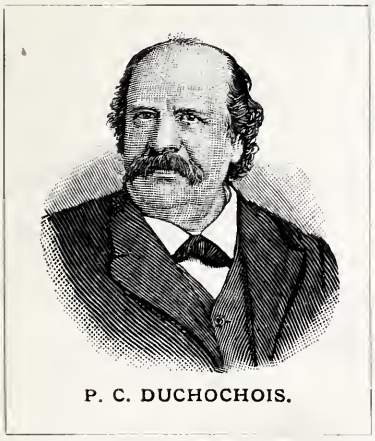
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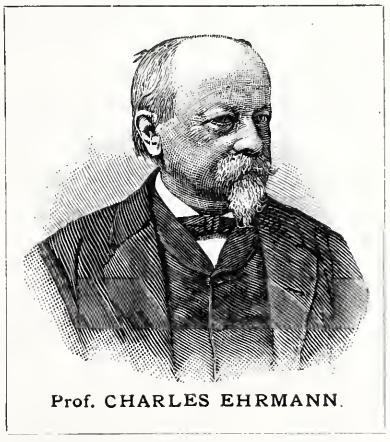


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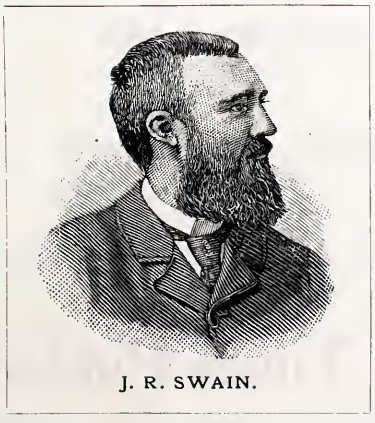


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A.H. SANBORN, PHOTO.

N.Y. PHOTOGRAVURE CO.

Greeting

THE PHOTOGRAPHIC TIMES.

VOL. XXII. FRIDAY, JANUARY 22, 1892. No. 540.

IN MEMORIAM.

WILLARD H. FULLER.

A COMRADE has been taken from our midst. A fellow-worker has entered into his eternal rest. We are bereft of our true friend and affectionate associate. What can we do but bow our heads in silence and mourn.

It is hard to realize that our dear companion, so full of life and ardor as he was a few days ago, has really been taken from us never to return. We cannot think of him as dead; he was always so very alive. And this is all so terribly sudden! He was with us only one week ago last Wednesday. A week from the following Thursday morning,* in the stillness of the early morning, he quietly passed away.

The career of Willard H. Fuller, though brief, is brilliant and honorable to a conspicuous degree. Dying in the thirty-eighth year of his age, he had only begun to enter upon the early prime of a life which was remarkably full of promise. He has been identified with THE PHOTOGRAPHIC TIMES for over ten years. Entering the employ of The Scovill Manufacturing Company in 1880, he at once manifested those sterling qualities which made him the faithful and efficient business man all recognized him to be.

His first connection with The Scovill Manufacturing Company was in the brass department, when the company occupied its old quarters at 419 and 421 Broome Street. The faithfulness and efficiency of his services in this position were soon properly rewarded by his being called into a more responsible position, and he took up the duties of a chief place in the photographic department of the company with the same ardor and ability which he had shown from the first.

He then first became associated with THE PHOTOGRAPHIC TIMES. Mr. J. Traill Taylor was then editor. He became the associate editor, devoting his energies mainly to the commercial interests of the magazine. In that capacity he has served the publication ever since, and no magazine ever had a more faithful or efficient supporter than he has always been.

Mr. Fuller's temperament was an aggressive, enterprising one. It was also original in many directions. He invented and patented a number of useful articles for photographers, including several cameras and improvements upon cameras. He was also one of the original promoters of the Chautauqua School of Photography, and always had the keenest interest in its success. But what was he not interested in? It is impossible to do justice, in an article of this kind, to the breadth of mind, the diversity of interests and activities, which characterized this talented young man.

Though born in the East, Mr. Fuller was essentially a Western man. He was removed to Chicago when very young, and there passed his boyhood and young manhood. He was full of the Western enterprise and push. But he united with these excellent qualities others of a gentler type, which made him the man we all love and respect. He was the diligent business man, the good citizen, the devoted and beloved husband and father, and the conscientious Christian gentleman. He has left void in our hearts a place that cannot be filled.

W. I. A.

The funeral occurred, in church, Sunday afternoon, at four o'clock, in Passaic, N J. The interment will be at Kenosha, Ill. The funeral was largely attended. His associates in the employment of the Scovill & Adams Company were present in a body, from the President of the Company

* January 14th, three o'clock, A. M. Peritonitis.

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to the office boy, and THE PHOTOGRAPHIC TIMES was represented by its full staff. The American Optical Company and the Scovill Manufacturing Company were also fully represented. Among the other business friends who were present were Col. V. M. Wilcox, President of E. H. & T. Anthony & Co.; Mr. Samuel D. Styles and Mr. Alexander Cash, of the firm of Styles & Cash; Mr. Jacob Kleinhaus, of Charles Cooper & Co.; Mr. Wuestner, of the Eagle Dry Plate Works; Mr. Franklin Putnam, dealer in photographic supplies; Mr. R. H. Moran, photographic merchant, and many others. Mr. Fuller leaves a wife and two children. He leaves a host of friends; wherever he was known he was admired by many warm friends; in Waterbury, Chicago, Passaic (his late home), by every one of his business associates, and all those with whom he had business dealings. He leaves behind him a bright and unfading memory which will be cherished by all.

PHOTOGRAPHY ABROAD.

DEVELOPING WITH LITHIUM CARBONATE.

IN the *Revue Photographique*, Mr. P. Blanquart states that in his numerous experiments with pyrogallol, hydroquinone and eikonogen compounded with potassa, soda, ammonia, lithia and their carbonates, and also with baryta and strontia, the advantage rested for the development of *negative clichés* with pyrogallol employed united to the carbonate of potassium and sodium. But if this developer (pyrogallol) presents more resources than any other, it should be acknowledged that its use requires more experience and hability. By substituting lithium carbonate for the other alkaline carbonates, the developing solution is quite energetic, yet less liable to produce fog, giving clichés remarkably clear and transparent,—so transparent, indeed, that the development should be pushed through the film to obtain good contrasts; besides, the development is so much more slow as the exposure time is shorter. For this reason, states the author, it is advantageous to use the hydrate (caustic lithia). Here are the proportions which always give good results:

a. Pyrogallol	7 parts
Sodium sulphite	20 parts
Water	100 parts
b. Lithium carbonate	10 parts
Water	1000 parts
c. Lithium carbonate	10 parts
Water	1000 parts

To which are added 400 parts of water holding in solution 20 parts of barium hydrate. Let set and decant. This is the solution of lithium hydrate.

The developer consists of

Solution (*a*)	1
Solution (*b*) or (*c*)	1 to 3 (maximum)
Water	10

Potassa, soda, ammonia, and their carbonate always produce a slight veil with pyrogallol. Lithium hydrate and the carbonate do not if employed without excess.

Baryta, lime, strontia never produce fogging.

With baryta the development is almost instantaneous, but the preparation of the bath is difficult. Strontia is preferable to lime.

One must with these developers avoid using potassium, or any other bromide. Intensity is obtained by the addition of a greater dose of pyrogallol, and the contrasts are attenuated by using salted water.

DEVELOPMENT WITH GELATINE.

The *Photographic News* gives the following formula for a developer compounded with gelatine: Dissolve in a water bath 35 parts of Nelson's gelatine in 65 parts of water, add 30 parts of a concentrated solution of caustic soda, and let boil until the solution be fluid.

Add 1 part of this to 8 parts of a solution of pyrogallol 1 : 250. No bromide. This developer is good only in the case of a normal exposure.

CLAUDET RAPID PRINTING PROCESS.

Float the paper on a 4 per cent. solution of bichloride of mercury. When dry, sensitize on a silver bath at 8 per 100 of water. Expose under a negative cliché; the exposure varies from twenty seconds to one minute. Develop with

Sulphate of iron	3
Acetic acid	4.5
Water	100

Wash, then fix with sodium hyposulphite, etc.

This process merits to be tried.

"COACHING."

OUR coaching picture is from a negative made for an amateur by Mr. A. H. Sanborn, of Lowell, Mass. The amateur is Charles J. Glidden, Vice-President of the Lowell Camera Club, and owner of the turnout. "I could not make the photograph and hold the ribbons at the same time," Mr. Glidden writes. Mr. Glidden is therefore depicted holding "the ribbons." The other gentleman on

the box seat is N. J. N. Bacheller, treasurer and manager of the *Morning Mail*, of Lowell, Mass. The remainder of the party are members of the *Mail* editorial staff. The coachmen are Mr. Frank Canning and Mr. Harry Seymour, of London. "Mr. Canning is an expert 'trumpeter,'" Mr. Glidden wrides, "and turns out 'the best.'"

EDITORIAL NOTES.

THE winter season has been so far very mild in New York and the adjacent country, but Jack Frost will soon be upon us, and with it come its usual train of photographic troubles both in the negative and printing processes.

One who never has experienced it can form no idea of the great influence of the temperature on the development. When a cold developing solution is employed the details hang back—supposing the exposure time to be sufficient in ordinary circumstances—and the image slowly develops with greater contrasts than one should suppose from the exposure; while by using the same developer heated to common temperatures, the image soon appears, the details coming out in time, and the whole picture acquiring good intensity in a period of three or four minutes.

With hydroquinone the development is exceedingly slow indeed, and generally too much opacity is obtained in the high lights before the details in the shadows have acquired the proportionate density. The result is obvious.

By analogy we think that para-amidophenol behaves as hydroquinone. As to eikonogen, it is well known that it is less influenced by cold than pyrogallol, but more so than ferrous oxalate, both generally yielding weak reductions in the case in question. Hence the rule:

In the cold season raise the temperature of the developing solutions to 18 *to* 21 *deg. C.* (65 *to* 70 deg. *Fahr.*) *and develop by the tentative method.*

SACCHARATE OF LIME as an accelerator of pyrogallol has been found by French and German photographers to form a good developer for gelatine plates. This organic salt is prepared by saturating a syrupy solution of crystallized sugar with lime. It should be added to the pyrogallol and sodium sulphite developer by small quantities, according as the image comes out. Two per cent. is an average dose.

The saccharate of lime was introduced by Mr. A. Davanne.

THE combinations of the alkalies with glucose possess very powerful reducing properties. This induced Mr. Maxwell Lyte to try whether the invisible image formed by the agency of light on the photo-collodion could not be developed by the glucosate of lime, and his experiments succeeded very well. No doubt that this compound can also be employed in the same manner as the saccharate for the development of gelatine plates.

Lime glucosate is prepared by adding slacked lime diffused in water to a syrup of glucose at about 25 deg. Baumé until it dissolves no more lime. Shake then the whole in the bottle for a few minutes and allow it to rest for several days in a cool place. The clear liquid will be tinged brown, but by adding to the portion decanted sulphuric acid, diluted with water and cold, in small quantities, calcium sulphate is formed and the solution at once loses its color. Stop then and filter through linen.

LECTURES on photography have been inaugurated which promise to be exceedingly interesting and instructive. The professors are scientific men and photographers of great authority: Janssen, Lippmann, Paul Henry, Davanne, Fabre, Londe, Léon Vidal and many others of not less celebrity.

On the other hand, Mr. Ch. Gravier will give a course of practical lessons on the processes usually employed and on the application of photography to the graphic arts: Lithography, typography, engraving on stone, wood and metal, and on various polygraphic processes.

These lectures and courses of lessons are attended by about four hundred persons. They are free. Yourself, reader, and your friends are invited.

We forgot to say that the lectures are delivered, not in Columbia College, but at the Conservatoire National des Arts et Métiers of France, and the practical instructions given at the Philotechnic Association of Paris.

THE Lynn Camera Club has added a billiard table to the other attractions of its club rooms. In a letter addressed to the editor of this magazine, in this issue of the magazine, the club calls for comment upon its action in this regard from other clubs. We trust that this invitation will be responded to, not only by liberal comment on the advisability of adding the billiard table to the club room, but also on the broader question of how best to promote the social interests of the camera club. We think the Lynn Camera Club has taken a step in the right direction. We should like to see other clubs follow its example, and go still further. One of the reasons why the English

camera clubs are so very popular is, that they unite with the photographic attractions of their club rooms social attractions as well. Some of the leading clubs are not only provided with billiard tables, libraries, reading rooms, etc., but have well-furnished gymnasiums provided for the use of the members, and even a cuisine department where members and their friends may lunch together. The consequence is, that the English camera clubs take the place to a great extent of other clubs, and photography is benefited as a result.

GEORGE FRANCIS SCHREIBER.

A REMINISCENCE.

THE death of George Francis Schreiber, the oldest photographer in America by years and in experience, the first pioneer in the profession, for he was a contemporary of Talbot, of Niepce and Daguerre, has brought much sorrow and regret among all those who have known him intimately and had become aware of his rich treasure of knowledge in matters photographic.

Schreiber has done much for the advancement of photography, but in the interest of history it becomes us to correct some of the erroneous statements relating to his life as published in some of the Philadelphia newspapers.

I am well aware of his experiments in talbotypy made as early as 1843, but they had become of practical value only after his connection with the brothers William and Frederic Langenheim, who had established a daguerrean atelier in the Exchange building on Dock Street, and by whose united efforts talbotypes, not original pictures, but copies of daguerreotypes, were made, to the satisfaction of all picture-loving people, and offering many advantages over the daguerreotype then in vogue, created quite an excitement.

Although Fox Talbot had successfully experimented before 1839, employing iodide of silver as the sensitive substance spread upon paper, before even Daguerre made public his celebrated invention, the talbotype became known only in 1841 when Fox Talbot protected his invention by letters patent.

Schreiber, a man of education, knew of Talbot's invention, there is no doubt, and was led to make the experiments in his residence on Dillwyn Street, as reported by the newspapers.

The brothers Langenheim, formerly officers in the army of the Grand Duchy of Brunswick, had taken active part in the struggle for the freedom of Texas against the Mexican empire, and after the independence of the young State had been declared in 1845 they settled in Philadelphia, as stated before.

As far as I know Schreiber was an employee of the young but eminently successful firm. To the present day Langenheim daguerreotypes are still considered by old Philadelphians the best of all sun pictures ever made.

So far as I know Schreiber was an employee of the Langenheims when the Niagara pictures mentioned by the *Evening Telegraph* were made, but they were not photographs, but daguerreotypes of 6½ x 8½ inches in dimensions. The first photographs of the Falls I made in 1853 under the direction of James E. McClees.

No credit is due to either Schreiber, Langenheim, or to anybody else attempting to claim to have first proposed transparent supports for the sensitive film ; but only to Sir John Herschel, who experimented in that direction in 1839, and who was much improved upon by Niepce de St. Victor. Langenheim, and with him Schreiber, well understanding the utility of a transparent support, had worked very successfully, but were forestalled by John A. Whipple and Wm. B. Jones, of Boston, Mass , who took out patent No. 7,458, on June 25, 1850, for the production of negatives and positives on glass, the crystallotype process. Whipple made his positives on albumen salted with chloride of ammonium, subsequently sensitized with nitrate of silver, printed and fixed in pure hyposulphite of sodium solution, and thus Frederick Langenheim was enabled to take out patent No. 7,784 on November 19th of the same year. But he produced the image by iodide of silver carried in the albumen film, subsequently developed with gallo-nitrate of silver. From the Greek "hyalos," glass, these pictures were called hyalotypes. They were backed by a ground glass, and used first for window decorations and for diapositive stereoscopics. Mr. Schreiber was the first to use them as such, and they became, as it were, the forerunner of the photographic lantern slide. The Langenheim or Schreiber pictures were of a black color with a greenish cast ; those of Whipple were of a reddish tone and feeble, and for that reason they have never become popular to any extent.

Long before toning prints black by means of chloride of platinum or chloride of gold was known, the absolutely black talbotypes made by Schreiber were much admired by the few photographers of that time (1852), and James Cutting, of Boston, could well offer to exchange his new collodion process for Mr. Schreiber's method of toning. The offer was rejected, as has been

stated, but it was well known the toning was done by means of nitrate of lead.

The collodion process offered by Cutting was nothing new either, an infringement on Whipple's crystallotype, with whom arrangements had to be made first before he could demonstrate it. It was known, however, long before Cutting's was thought of. In fact Mr. Edward Tilghman, of Philadelphia, brought the first collodion to America from England about a year and a half before Cutting made his appearance. To protect himself to some extent Cutting took out patent 11,213 on July 4th, 1854. It covered the addition of camphor to iodized collodion, nothing else, but gave rise to interminable quarrels and lawsuits, to the detriment of many photographers.

Being anxious to preserve facts relating to American photographic history in perfect purity, I have written down these few remarks. Photography is but half a century old; still her history exists but in a fragmentary condition, many events of which no record has been made, having been cast into oblivion and completely lost to the historian.

These efforts of mine will not, I hope, be misunderstood, as I do not intend to detract a vestige from the merits of my old friend, who has always been, in my opinion, one of the best informed and most successful members of our craft, from its incipiency to the present state of perfection. He will forever remain vividly alive in the memory of the few of his contemporaries and co-workers who still survive.

Charles Ehrmann.

THE CHEMISTRY OF PHOTOGRAPHY.

(*Continued from page* 29.)

CHAPTER I.—*Continued.*

Chemistry of the Preparation of Wet Collodion Plates.—The collodion process was the work of F. S. Archer, in 1851. It is most interesting to trace the evolution of photographic processes; and nothing can be clearer than the fact that the collodion process (which reigned supreme from 1851 to 1879) was the outcome of the calotype and the albumen processes. Archer substituted collodion for albumen as a means of causing the chemicals to adhere to the glass. He first coated the glass plate with collodion in which potassium iodide and bromide had been dissolved. The coated plate was then dipped into a solution of silver nitrate, when what chemists call "double decomposition" took place, and silver iodide and bromide were formed within and upon the collodion. A certain amount of the silver nitrate solution also clung to the surface of the plate, and acted as a sensitizer. We may represent the action of the silver nitrate as a sensitizer by an equation:

$2AgNO_3$	+	I_2	+	H_2O	=			
Silver Nitrate	*and*	Iodine	*and*	Water	*produce*			
2AgI	+	$2HNO_3$	+	O				
Silver Iodide	*and*	Nitric Acid	*and*	Oxygen.				

The other equations are the same as those just given for the albumen process. The plate was exposed, while still wet, in the camera; and was afterwards developed by pouring upon it a mixture of pyrogallic acid and acetic acid.

With more experience in the working of the collodion process, it was found that the best halogens with which to "salt" or impregnate the collodion were ammonium iodide and cadmium bromide. The chemical changes produced when collodion so salted is dipped into a bath of silver nitrate solution may be expressed by the following two equations:

$AgNO_3$	+	NH_4I	=	AgI	+	NH_4NO_3		
Silver Nitrate	*and*	Ammonium Iodide	*produce*	Silver Iodide	*and*	Ammonium Nitrate.		
$2AgNO_3$	+	$CdBr_2$	=	2AgBr	+	$Cd(NO_3)_2$		
Silver Nitrate	*and*	Cadmium Bromide	*produce*	Silver Bromide	*and*	Cadmium Nitrate.		

The inconvenience of carrying a portable dark-room, and a large glass vessel ("bath") to hold the nitrate of silver solution, together with all the other articles necessary to sensitize and to develop a wet collodion plate, were very great. For the plate had to be exposed while *wet*. If the silver nitrate solution were washed off and the plate dried, it was found to have lost its sensitiveness to light. If the plate were dried with the nitrate solution still upon it, the silver nitrate crystallized out, forming a network of crystals which spoilt the even surface of the collodion. This drying-up of the film prevented very long exposures being given in the camera, such as were frequently necessary for interiors, etc. Moreover, it was necessary, after exposure, to develop the plate before it had time to dry. For these reasons the photographer was compelled to drag a dark-tent and all the necessary materials for sensitizing and developing his plates, about with him. Well may the modern kodakist shudder as he reads of those times!

Dry Collodion Plates.—Very soon after Archer's publication of the wet collodion process in 1851, attempts were made to reduce, or do away with, the necessity for exposing and developing the plate while still wet. The first attempts took the form of preventing evaporation, as when M. Girod applied a plate of glass in contact with the wet film, in

1853; but it is evident that this would be likely to abrade and injure the delicate skin of collodion. Then Messrs. Crookes and Spiller, in 1854, coated the wet collodion with a solution of nitrate of zinc. This substance absorbs moisture from the air, and so keeps the film from drying up. Then Shadboldt and Lyte, in the same year, coated the collodion film with a solution of grape sugar, or of honey; which again kept the surface moist. Oxymel—a mixture of vinegar and honey—was recommended for the same purpose by J. D. Llewelyn, in 1856. But in practice all these methods were found to be but very poor makeshifts. In 1857 a Mr. H. N. King managed to keep the surface of his plates moist without doubt, for he carried his plates in a light-tight box filled with distilled water!

Another great trouble to the early experimenters who attempted to obtain "dry" collodion plates, was the fact that the collodion film when dry had a great tendency to flake or scale off from the glass plate. This was obviated in 1859 by the introduction by Hardwich, Barnes, and others, of various materials, such as gelatine, albumen, india-rubber, etc., with which the glass plate was thinly coated *before* it was covered with collodion. Any such adhesive was called a "substratum," and the collodion adhered firmly to it.

Successful Collodion Dry Plates.—The first successful dry-plate process with collodion was the discovery of Dr. J. M. Taupenet, in 1855. He washed the sensitized collodion plate, and then flowed it over with iodized albumen: the plate was then again sensitized and again washed; finally, it was dried. This process was followed by many others, and many substances, such as gelatine, gallic acid, gum arabic, tannin, coffee, tea, etc., were used to flow over the previously sensitized and washed collodion plates. Such substances received the name of "preservatives," because they acted as a kind of varnish, preserving the surface of the film from the injurious action of the air; but they also acted as sensitizers, absorbing the halogen which was given off under the action of light. Further, by filling up the pores of the collodion they offered an easy way of access to the film when the developer was subsequently applied. Perhaps the most successful of the numerous preservatives was *tannin*, which was recommended by the late Major Russell in 1861–65.

W. Jerome Harrison.

(*To be continued.*)

TONING SLIDES WITH URANIUM SALTS, AND A FEW ADDITIONAL REMARKS ON THE COLOR OF SLIDES IN GENERAL.

[Read before the Society of Amateur Photographers of New York.]

EXPERIMENTS in toning slides with uranium salts have led me to adopt the following simple working methods:

Give full exposure, and develop with any ordinary developer until the slide looks somewhat flatter than it is to appear when finished; in other words, the highest lights must have a silver deposit in them, and not be clear glass. After having fixed the slide in hypo in the usual way, wash it thoroughly under a tap for a few minutes, the elimination of the hypo being of importance to insure success in the toning operations, which are as follows:

Make up the following three stock solutions, which can be made up in a few minutes, and keep indefinitely:

No. 1.

Uranium nitrate	1 part
Water	100 parts

Filter in case the solution is not clear; this is generally unnecessary.

No. 2.

Ferricyanide potassium	1 part
Water	100 parts

No. 3.

Ferrichloride	1 part
Water	10 parts

Now you have everything necessary for toning, and proceed as follows:

a. CHOCOLATE-BROWN TONES.

Take 10 parts of No. 1 and 1 part of No. 2 and permit the slide to remain in this solution until the desired tone has been reached. In order to control the procedure of the operation, examine the slide in transmitted light every ten or fifteen seconds. The whole operation rarely lasts a minute. After the desired color has been produced in the slide, wash the same for a few minutes, and then place it upon the rack to dry.

b. BROWN TONES.

Take 5 parts of No. 1 and 1 part of No. 2, and proceed as in *a*.

c. REDDISH-BROWN TONES.

Take equal parts of Nos. 1 and 2, and proceed as in *a*.

d. RED TONES.

Take 1 part of No. 1 and 2 parts of No. 2, and proceed as in *a*.

In order to keep the high lights clear in this operation, a few drops of glacial acetic acid solutions added to the toning solution may be used to advantage. I myself never use any, though, not deeming it necessary if the toning operation is carefully performed.

e. Greenish-Blue Tones.

Take equal parts of Nos. 1 and 2, and tone the slide until it is of a very dark color, and very dense. Rinse for three or four minutes, and then plunge into a solution of 1 part of No. 3 and 5 parts of water, in which solution the slide is allowed to remain for at least five minutes. It is then washed and dried, drying out in a greenish-blue.

f. Blue Tones.

Instead of plunging into a solution of 1 part of No. 3 and 5 parts of water as in *e*, take the stock solution as it is, and allow the slide to remain in that for five minutes, as in the above, after which wash and dry. Continued washing will not harm the slide, but a simple rinse will suffice.

The tone attained in this manner is an excellent one for seascapes and moonlight effects especially.

In case the resulting slide after toning is not satisfactory, it is easily brought into its original state by dipping it into a dilute solution of potassium cyanide for a few seconds, upon which the slide regains its original tint. Do not allow the slide to remain in the cyanide solution longer than absolutely necessary to remove the toning stain, inasmuch as the solution is a powerful reducer, and would in short time eat away the whole picture. After having washed the slide after this operation it may be retoned again with any one of the above-mentioned formulas.

In case similar results are wished to be attained with other salts than uranium-nitrate and ferricyanide of potassium, slides can easily be toned brown or red by treating them in the following simple way: After having washed the fixed slide thoroughly, dip it into a concentrated solution of bichloride of mercury until well bleached, after which operation wash for at least ten minutes in running water, and then color with a concentrated solution of sulphite of soda for brownish tones, or with a concentrated solution of carbonate of potash for reddish ones. The results are generally very fine. This method led me to the following observation. It often happens that the films of slides upon developing with hydroquinone are stained a deep yellow, even orange, and that such slides are only good for covering glasses, after the film had been carefully removed from same in either hot water or acid. This is no longer the case. Should the stained slide be good in all other respects, do not throw it away as heretofore, but give it a short bath of bichloride of mercury, which bleaches the color at the same time that the silver image is bleached. Upon treatment with either ammonia, sulphite of soda, or carbonate of potash, the stain will have entirely disappeared, and the resulting slide will often turn out to be a gem of the collection.

Now a Few Words as to Tones in General.

Except for exceptional cases I think it advisable not to tone slides, but to try and get the fine brown color directly in development, a color so easily obtained by the well-known formula—

Hydroquinone	1 part
Sulphite of soda	4 parts
Carbonate of potash	3 parts
Water	85 parts

using 1 part of this solution with 4 parts of water, after having exposed four times as long as would have been necessary to obtain a black tone with the normal developer, that is, 1 part of the stock solution and 1 part of water.

For certain effects, though, toning is very advisable, the choice of color depending entirely upon the good taste and judgment of the slide-maker.

These few remarks, I hope, will lead some of my colleagues to further experiment in this particular fascinating branch of photography, and I sincerely hope that they will soon improve upon my own crude experiments.

Alfred Stieglitz.

Mr. Peebles Smith gives the following Working Method:

A.

Water	100 ounces
Ferricyanide potassium	4 grains
Acetic acid	2 drams
Uranium nitrate	4 grains

Mix in order given.

Increasing the amount of ferricyanide gives redder tones and stains the gelatine, which disappears in bath—

B.

Water	20 ounces
Alum	1½ ounces
Hypo	8 ounces
Silver nitrate	20 grains
Chloride of ammonia	40 grains
Gold chloride	15 grains
Citric acid	5 grains

Boil this and decant in case of precipitate occurring. Before using this solution permit it to stand one hour.

After toning to the proper point with A, rinse and dip into B, rocking until the high lights are perfectly clear. In this method expose and develop as for any ordinary slide.

In case over-development has taken place, if left in B long enough the intensity of the plate will be reduced. The plates thus treated resist the action of nitric acid, and the tone cannot be washed out by continued watering.

Personally, I have not been able to try this method myself.

A. S.

Correspondence.

A PARA-AMIDOPHENOL DEVELOPING FORMULA.

To the Editor of THE PHOTOGRAPHIC TIMES.

Dear Sir: I enclose check for renewal of subscription, and I take advantage of the opportunity to express the satisfaction derived from your admirable pages during the past year.

The recent announcement in your columns that para-amidophenol hydrochlorate was not to be crowded out of the market gave me much pleasure, for having been fortunate enough to secure samples from the earlier importations by The Scovill & Adams Company last October, I at once recognized it as a developer of rare merit, and now after much experimenting in an amateurish sort of way, I have evolved the following formula as a safe and satisfactory one-solution developer, allowing a wide range of exposure and producing detail and density in proper order and at a safe rate of speed:

Hot water	6 ounces
Sulphite soda, crystals	240 grains
Para-amidophenol hydrochlorate	12 grains
Carbonate of potash	60 grains

Dissolve in above order and filter.

This may seem at first sight a rather weak solution, but in my hands it has proved the best all-around one-solution developer yet tried, and I offer it to you for the benefit of fellow-amateurs who desire a single solution in which an over-exposure will not be ruined as soon as immersed, and which is at the same time capable of developing an under-exposure without blocking up the high lights.

The enclosed print of Columbia College and the Cathedral, taken from my window, is from a negative developed with the above formula, and I send it to you, as the subject was a severe test for a one-solution developer on account of the widely varying intensities of light from the dense shadow in the street to the dazzling whiteness of the Cathedral spires outlined against a perfectly blue sky.

On the ground of economy no fault can be found with this developer, the prepared solution costing only about one cent per ounce, and in addition to its excellent keeping qualities may be cited the very favorable fact that a number of plates can be developed in a single tray of the solution.

Very truly yours,

Wm. D. Murphy.

NEW YORK CITY, Jan. 15, 1892.

[The photograph referred to is excellent in every respect.—*Editor* THE PHOTOGRAPHIC TIMES.]

PHOTOGRAPHY AND BILLIARDS.

To the Editor of THE PHOTOGRAPHIC TIMES.

Dear Sir: The matter of the club having a billiard and pool room in connection with the studio and work-rooms has been the subject for discussion for the past year or so, and there has been a doubt in the minds of some as to the advisability of having such an article in the rooms of a camera club, especially when that club had lady members.

In our case it was found that the lady members were not in the least opposed to the idea, and in fact by some was hailed with delight, for the reason that it would give them a chance to try their hand at this fascinating game at any time they should wish, and at a room which at all times is entirely private, and where they may feel as much "at home" as if they were playing on their own table.

We have added this feature for two reasons, namely: To promote a more social aspect to the club, and have the members become better acquainted, which we believe will be of mutual advantage photographically; and to give the members who use the rooms a chance to enjoy themselves while waiting for the tedious "photographic washing process."

We should like to hear from our friends in other clubs as to their most successful ways of entertaining their members and their idea of our way of proceeding.

Yours truly,

The Lynn Camera Club.

A REPLY TO WM. X. AND SENEX.

To the Editor of THE PHOTOGRAPHIC TIMES.

Dear Sir: I notice in THE TIMES of the 25th of December an anonymous article signed Wm. X., which I suppose was intended as a criticism of my contribution to the last "Times Annual." Also another of similar character in THE TIMES of January 7th.

I should judge that these two would-be critics were hatched in the same nest, as the last one cannot make up his *nom de plume* without an x! As a rule I pay no attention to anonymous writers. My opinion is that any person who does not put his name to what he writes, especially when criticising the writings of others, is not worthy of respect or attention. I will, however, make a slight exception to this rule in these cases.

A critic, to carry weight when criticising the writings of another, should pay particular attention to the accuracy of his statements about the particular things he deems faulty. This Wm. X. fails most signally to do, and I confess my entire inability to determine just what he is driving at. He asks some senseless questions in a way which causes us to infer that he wants the readers of THE TIMES to think they are posers and that he can answer

them. A laudable ambition! I will reproduce the questions which end his article: "What is the theory of the lead-alum toning process without washing out the nitrate of silver from the prints?" "Is lead deposited on the silver?" "What is the chemical equation?" "Is sulfuration avoided?" "How?"

I am inclined to think these questions will be sufficient to show the construction of Wm. X's head and about what we should rationally be expected to find in it.

You will notice that next to his last question is this: "Is sulfuration avoided?" Where in the world did he run against such a word as "sulfuration"? Certainly not in photographic chemistry. Sulphur in any chemistry is spelled with ph, and so far as I know, sulphuration is only used in the chemistry of bleaching when certain fabrics are subjected to the fumes of burning sulphur or its equivalent.

I now call special attention to the first question of Wm. X., which I have quoted, where he asks for my "theory of the lead-alum toning process without working out the nitrate of silver from the prints"

This question alone shows conclusively the utter ignorance of Wm. X. on the subject he is so ambitious to criticise me about. He seems entirely unacquainted with the fact that my article is treating of a method of toning pictures produced on the surface of a gelatine emulsion of silver chloride. Will Wm. X. please tell the readers of THE TIMES what he means when he writes about washing out the nitrate of silver from prints made on such paper? If Wm. X. would read up a very little on silver emulsions, both gelatine and collodion, he would stop appearing on the pages of THE TIMES in comedy. If he will take the trouble to consult THE TIMES for the month of June, 1875, he will find nearly six pages which I contributed relating to some experiments of mine on the construction of collodion emulsions. In this article Wm X. will learn how the *first* permanent collodion emulsion was made, and what is requisite Have you, Wm. X, read my article in the "Times Annual"? If you have, will you please tell the readers of THE TIMES just where in my article I "*recommend* nitrate of lead instead of chloride of gold as a toning agent" You can't do it, because there is no such thing in my communication.

I use the word recommend but once in my contribution, and then only when I suggest the use of lead to eradicate the hypo from the print, and, for this, reproduce an old formula which I published nearly fifteen years since, which has been extensively used in this country and Europe.

My next question is this: Does Wm. X. dispute or deny my position in reference to the fading of silver prints? and if so, why? Does he affirm there is on a silver print a compound of silver and albumen! If so, why? Wm. X. in his second paragraph asserts that I "advise" us "to discard gold." Do I? Please point out where; you can't do it, for the reason that no such advice is given, and you undoubtedly know it. Wm. X. goes on to say: "Now, Mr. Editor, there are in this many things I do not understand at all!"

I should think so!!

My article, as you, Mr. Editor, well know, is a simple narration of my experiments with a process of toning which had been introduced and published some time prior to my experiments. The addition of the salts of lead, and changing the formulas necessarily, was all there was new about it, as far as I am concerned. If those who have tried it don't procure results such as I describe, then there would be good reason for inquiry or criticism. Whether prints produced by this process will be permanent, or sufficiently so to compete with other methods, cannot be determined positively by speculation. Time will answer all such inquiries.

That tones are and can be produced, such as I describe by this method, has not been questioned or disputed so far as I am aware.

I will now say a few words to my other critic. The utter disregard of truth and the meager intellect exhibited inclines me to the opinion that "Wm. X." and "Senex" are one and the same person. Whether this be so or not, I will say my say to him as "Senex."

Now, Mr. Senex, in your first direct statement you say: "Mr. Newton does not admit the possibility of albumen entering into chemical combination with other bodies." If Senex has read my article, and don't know that such a statement is in every particular not only utterly *false*, but that there is not in my contribution anything to make it out of, then he does not know enough to understand and comprehend plain English. What I wrote on the subject was simply to show that because a substance coagulates albumen, it is no evidence that a chemical combination had been formed with such substance. No one who is informed on the subject would dispute such a statement. I will quote what I wrote on the subject: "I am writing now of egg albumen, which in some respect differs from serum albumen in its power of forming compounds."

If this does not state that albumen has the power to form compounds, what does it say?

It not only says, it but it is exactly true. In talking or writing on the compounds of albumen, one should state whether they are discussing the properties of egg or serum albumen, because, as stated in my article, they are not exactly alike in their capacity to form compounds.

The rest of what Senex writes is of no interest, because it is not pertinent, as the compounds of albumen cannot legitimately be made the subject of criticism on my contribution to "The Times Annual." If, however, Senex has an appetite which refuses to be satisfied for this kind of mental recreation, and will raise an issue that is definite, which could be done by denying the correctness of any statement I have made in what I have written on this particular occasion, or at any other time, I will notice what he has to say, provided he musters courage enough to put his name to what he writes. I want to know what I strike at before I strike.

Yours truly,

Henry J. Newton.

NEW YORK CITY, January 15th, 1892.

Notes and News.

W. H. Jackson, of Denver, Col., is in New York on a business and pleasure trip combined.

Views by the Syracuse and Albany Camera Clubs will be shown at the lantern-slide exhibition of the Society of Amateur Photographers of New York, Friday evening, January 29th.

The work of Mr. Alfred Stieglitz, consisting mainly of views and genre subjects taken in Europe, was exhibited by means of an optical lantern, Wednesday evening, January 20th, at the Society of Amateur Photographers of New York.

The Photographic Society of Philadelphia gave a reception Tuesday evening, January 21st, at the opening of their new rooms, No. 10 South 18th Street.

The Photographic Image, by P. C. Duchochois. New York. A very complete treatise on all the factors that go to the making of the photographic image by the gelatine and collodion negative processes, and by the positive processes of ferrotype and bromide paper.

The Lighting in Photographic Studios. By P. C. Duchochois. Price, 1s. 6d. (London: Hampton, Judd & Co.) This treatise on a most important part of the work of the photographic operator is well known and widely read in the United States, and we know that amongst our own readers there has been a considerable demand for the work on the strength of the synopsis of contents given in our last issue in the advertisement of The Camera Publishing Co. There are many hints in the book which the veriest skimmer may pick up and turn to account; but there is a great deal more to be gained from it by the careful student who puts thought into the perusal, especially if he is able to read between the lines.—*The Practical Photographer.*

The Christmas Number of THE PHOTOGRAPHIC TIMES, issued December 18th, is a beautiful production, typographically and artistically. The letterpress, which is of special interest to everybody interested in photography, is embellished by handsome initial letters worked in colors and every picture is a gem. The frontispiece is a fine photogravure of a figure subject, entitled "Merry Christmas," from a photograph by Miss E. V. Clarkson. Then there are reproductions of woodland and brook scenes, depicting nature at her best, and another charming photogravure of "The Old Cabin Home." Altogether it is a striking number of this excellent periodical, which is a credit to the art photographic.—*Coolie's Weekly, Norwich, Ct.*

Two recent photographs from the Congo are of more than ordinary interest. One of them shows a steep and partly precipitous side of a towering hill with scanty patches of vegetation here and there relieving the nakedness of the thick rock strata, while many feet below flows the wide Congo. On slabs jutting out from the rock stands two men, one a native holding guide stakes. It is evident that they are surveyors' assistants.

The other picture is a view of the same spot. The rock fragments, broken from the wall, and strewn along the hillside, have disappeared. A broad, level highway has been cut through the rock. It is the roadbed of the Congo railroad which is to connect the great valley and its millions of people with the outer world; and the transformation that an army of workmen have wrought along this rugged hillside may be more typical of great and beneficent changes which the completed railroad will usher in on the upper river.

Photographic Societies.

THE SOCIETY OF AMATEUR PHOTOGRAPHERS OF NEW YORK.

THE regular monthly meeting of the Society of Amateur Photographers of New York was held at their rooms, No. 113 West 38th Street, on Tuesday evening, January 12th, at 8 o'clock. President James H. Stebbins, Jr., presided.

Mr. Alfred Stieglitz had been announced for a paper on "Toning Slides with Uranium Salts, and a Few Additional Remarks on the Color of Slides in General." Mr. Stieglitz was unable to be present, but sent his paper, which was read by Mr. Wm. M. Murray (see page). At the close of the reading a vote of thanks was tendered to Mr. Stieglitz and Mr. Murray.

Mr. Burton reported for the committee having in charge the society's exhibit at the American Institute Fair, that the expenses incurred were $193.52, which had been defrayed by the sale of 2,325 catalogues, and subscriptions by various members. The report was received, and the committee was discharged with a hearty vote of thanks.

Mr. Burton also reported that the expenses of the smoking concert of January 9th were $161.80, and that enough tickets had been disposed of to cover that amount. The committee received the thanks of the society for its very successful management.

Mr. Beach, chairman of the joint exhibition committee for 1891, presented an elaborate report, which showed a large deficit. The report was laid upon the table, after considerable discussion.

Mr. Beach was elected a director of the American Lantern-Slide Interchange.

After the appointment of a committee to renew the lease of the present quarters, the society adjourned.

CAMERA SECTION OF THE BROOKLYN Y. M. C. A.

THE annual meeting of the Central Camera Section of the Young Men's Christian Association of Brooklyn was held in the studio on Monday, January 11, 1892, President Wm. H. Lowery in the chair, with ten members present.

The usual business transactions being over with, the annual reports from Secretary and Treasurer were read, after which the officers for the ensuing year were elected as follows: President, Wm. H. Lowery; Vice-President, F. F. Braillard, Jr.; Secretary, Bernard A. Burger; Treasurer, Wm. D. Johnson.

The Committees appointed for the year were as follows:

Entertainment Committee—Bernard A. Burger, Chairman; F. F. Braillard, Jr., Gentry Waldo, A. H. Longstreet, E. A. Crowell.

Lantern Committee—F. F. Braillard, Jr., Chairman; B. A. Burger, Wm. D. Johnson.

Room Committee—Arthur H. Longstreet, Chairman; E. A. Crowell, J. G. McTaggart, C. Wight, F. F. Braillard, Jr., Wm. D. Johnson, Wm. Morgenthaler.

The past year has in every respect been a very prosperous one for the Camera Section. Not only have we increasd in membership, but the active part taken, and the variety of work done by our members, is indeed very encouraging and gives great hopes for the future.

Our membership on January 1, 1891, numbered but 12 active members, half of which took any real interest or part in the work of the Section. Now we have an active membership of 20, every one of which can indeed be called active, as not a week passes but what nearly all have been found at work in our studio and dark-room, as many as 10 working together in one evening, but the average being about 6.

The work of the members has not been confined to simply what the word photography implies, to take a picture; this we already know how to do, but our work has extended in almost all the branches of the art. Flash lights, bromide enlarging, copying, lantern-slides, window transparencies, etc., have been made by our members with the best results; further than this, we have not been contented with merely making these, but have gone into the chemistry of the science, trying the new papers, the new developers, the new plates, etc., experimenting for ourselves and measuring the results. Thus we have gained a knowledge of the various methods, by our own experience, which has taught us more than any or all the books on the subject could ever have given us.

Demonstrations have been given during the year by our members on the following subjects: The new developer para-amidophenol, the kallitype printing process, aristotype paper, orthochromatic plates, acid fixing baths, over-exposure, under-exposure, intensification, the Rodinol developer, etc.; papers on carbon printing, toning of bromide prints, printing on salted paper, are now in the course of preparation.

During the year our rooms have undergone a great change, many improvements having been made. In the dark-room a new red lantern, with electric light, has taken the place of the old leaky one, new shelves have been added, and in every possible way the room improved, so that we now have a dark-room second to none in the city.

The studio, too, has seen several changes. Ten new lockers have been added, the old curtain background has given way to a new reversible background showing one side drab and the other white; a fine portrait camera and stand have been added; a new burnisher and a reducing camera for lantern slides are also found amongst our property. An enlarging lantern for bromides is being made.

Not alone to indoor work and our rooms has the work of the Section been confined. Our summer outings have been one of our main features. Not a holiday passed but what the Section was out in a body, and photographing the beauties of nature and enjoying the sociability which always exists on these trips.

The outings made were: February 23d, Washington's birthday, to Eatontown and Shrewsbury, N. J. May 30th, Decoration Day, to Mountain View and Little Falls, N. J.; and this section offering such beautiful scenery the next outing, July 4th, was made to the same places, going over a little different route. Labor Day, September 7th, to Nyack and Haverstraw on the Hudson. Election Day, to East Chester, N. Y.

Besides these trips impromptu outings were made Saturdays to Greenwood Lake, Pompton, Roton Point, and many other places.

Our stereopticon has been in great demand this season. We have given several exhibitions of our own work at different places, and have operated the lantern for all the Association entertainments. At our meetings many new interesting slides have been shown, and several new series of views are being prepared for the future.

Bernard A. Berger,
Secretary.

MEETING OF THE EXECUTIVE COMMITTEE OF THE PHOTOGRAPHERS' ASSOCIATION OF OHIO.

The first meeting of the Executive Committee of the Photographers' Association of Ohio occurred at Lima, Ohio, January 4th, 1892.

The following are the officers of this committee: Ford Lewis, Celina, President; John Schneider, Columbus, First Vice-President; A. J. Wolf, Lancaster, Second Vice-President; J. C. Haring, Massilon, Treasurer; Leroy H. Hume, Lima, Secretary.

The purpose of this meeting was substantially to transfer the business of the former Northwestern Ohio Association to the new and permanent organization.

R. H. Ebersole submitted his report for the year ending January 1st, 1892. The report was received and adopted.

The question was raised as to whether Mr. Ebersole should be paid for services as Secretary, under the by-laws of the new constitution, which provides that 10 per cent. of the proceeds of the Convention shall be paid to the Secretary as compensation for his services. After discussion it was decided to leave the matter until the next meeting of the Association.

W. B. Kimball's report as local Secretary at Columbus was received and adopted.

As Mr. M. V. Gilbert's sudden death rendered it impossible for the appointing of any one to officiate for him, the Treasurer's report was not ready to submit.

A motion was made that the amount of the Treasurer's bond be $1,000, the same to be submitted to all members of the committee, and under advice of majority the Treasurer to prepare his bond properly indorsed and forwarded to the President.

Motion made to procure stationery. Amended to allow the Secretary full power to purchase and have printed all kinds required and of sufficient quantity.

Motion made and carried to send a personal letter to every photographer in the State urging him to attend the next meeting. These letters to be circulated directly from the hands of the committee, and a supply to be furnished to stock dealers in Ohio.

Messrs. Lewis, Harris and Hume were appointed a committee to construct the letter.

The date of next meeting was brought up for consideration, and after some discussion Wednesday and Thursday, August 10 and 11, was the date fixed.

The meeting then adjourned to meet again in Columbus at an early date to complete the programme for the next convention.

Leroy H. Hume,
Secretary.

The Editorial Table.

Experimental Science, by George M. Hopkins. New York: Munn & Co.

The design of this work, as stated in its preface, is to afford to the student, the artisan, the mechanic, and all

who are interested in science, a ready means of acquiring a general knowledge of physics by experimental methods. A large proportion of the material contained in the book consists of articles originally published in the *Scientific American*. Most of the engravings, however, are here for the first time given in book illustrations.

Apparatus is described in detail, and the experiments are explained in full. Many of the experiments are here described for the first time, and altogether the book is an extremely valuable one to all who are interested in this broad subject. It contains 740 pages with 680 illustrations, bound in substantial cloth with gilt ornamentations. It is sent by mail, post-paid, on receipt of $4, by the publishers, or our own publishers will undertake to supply the book to any of our readers at the same price.

The catalogue of Photographs issued by the Newark Camera Club in connection with the first annual exhibition of this enterprising club, which was held from November 23d to December 5th, 1891, at its hall, corner of Broad and West Park streets, Newark, is certainly a magnificent affair. It is sumptuously illustrated with phototypes from some of the more noteworthy photographs exhibited, the size of the catalogue being so large (9 x 12 inches) that these pictures are reproduced to the best advantage. Altogether the catalogue is worthy a place in any photographer's library.

Chapen & Brown, of Rochester, N. Y., announce their readiness to fill subscription orders for John E. Dumont's prize picture, entitled "Listening to the Birds." The edition is positively limited to 360 copies, of which 60 copies are printed on parchment, are signed, and are priced at $15 each; India proofs, signed, limited to 100 copies, are sold for $10 each; the prints upon silky Japanese paper, limited to 200 copies, are sold for $5 each. The plate measures 10 x 12 inches, and is made by the New York Photogravure Company, who make so many of the pictures for THE PHOTOGRAPHIC TIMES.

Mr. J. R. Smith, of Howard, R. I., has sent us four very pretty pictures. Two forest scenes represent babes in the wood, the forlorn and disconsolate represented in the twilight by babes, dog and surroundings. Wearied they make a bed of leaves and all lie down to sleep. "The End of the Harvest" speaks for itself. "Work or Play—Which?" is the other. The compositions are artistic and impressive, and although the negatives from which they have been printed are quite feeble, the printing being done on Omega paper overcomes that defect to a great extent, and contrast and brilliancy are attained.

The Photo Engraving Co., of 67–71 Park Place, New York City, send a very pretty calendar, ornamented by a half-tone engraving from a portrait of a young lady.

Lewis C. Booth, of Worcester, Mass., sends us a very pretty interior, correctly exposed, and carefully developed.

From S. R. Stoddard, photographer and publisher, of Glens Falls, N. Y., we have received a portrait calendar, ornamented with a half-tone picture from one of Mr. Stoddard's attractive negatives. The picture shows two men in a boat, not to mention the dogs and the slain deer. It is an Adirondack picture, and will appeal to all sportsmen.

Queries and Answers.

200 NICOLAI WERONSKOFF asks: (1) Is it absolutely necessary to varnish gelatine negatives, and if so what is the best varnish to use? (2) Must negatives be kept in light-tight boxes? (3) Can bromide prints be given a glossy surface by squeezing them upon tintype plates like we do with Omega prints?

200 *Answer.*—(1) It is not, provided they are handled carefully and all moisture is kept from them when printing. The S. P. C. crystalline varnish, a solution of pyroxyline in amyl acetate, is probably the most convenient varnish for amateurs. When applied to the gelatine film no heat is required, it dries slowly but evenly, and becomes finally hard enough to allow retouching upon it. (2) After the negative plate has been fixed and washed, all light-sensitive bodies are removed from it. (3) They can; proceed exactly as you would with Omega prints.

201 A. C. B.—I have read of bichloride of palladium being an excellent agent for the toning of albumen prints. Where can I obtain it, what is its price?

201 *Answer.*—At the Scovill & Adams Company. Price for 1 gram (15⅝ of a grain), $2.

202 MARGARETE B.—If a Carbutt B plate, Waterbury B lens stop *f*/35 requires an exposure of five seconds, how much will be wanted for a Carbutt orthochromatic plate sensitive No. 23?

202 *Answer.*—Three seconds or less, provided all other conditions are alike.

203 X. Y. Z.—How can old and black hydrochinon developer be restored to its original state and activity.

203 *Answer.*—We know of no means to do so.

204 A. F. of Kentucky writes: (1) What are opal plates, and what are they used for? (2) How much time of exposure is required to copy a cabinet card upon a Carbutt B plate?

204 *Answer.*—(1) Opal plates are made of white colored glass, the same material of which lamp shades are made. Plate manufacturers coat these plates with an appropriate emulsion. Prints are made upon them by contact and by artificial light, then developed as the manufacturer prescribes. The Carbutt opal plates enjoy an excellent reputation. (2) A Carbutt B plate, a Waterbury B lens (as you have) stopped down to *f*/25, the object to be copied in natural size, and in a bright but diffused light, will require from 45 to 60 seconds. The exposure will differ according to the intensity of light and the sensitiveness of the plate.

205 L. D. B. asks: (1) Will it do to let the paper remain in the fuming box after the ammonia has been removed? (2) May I save the ammonia and use it a second time? (3) Is it often the case that in washing prints the water shows no milkiness, and what is the cause of it?

205 *Answer.*—(1) It will not. Take the paper from the fuming box and place it in a separate room. (2) You may not. When ammonia has been exposed for 20 or 30 minutes to the air much of the gas has been expelled, and the solution materially decreased in concentration. (3) Excessive fuming will do it, or when the water is free from chlorides or carbonates. It does not occur often.

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W I. LINCOLN ADAMS, Editor.

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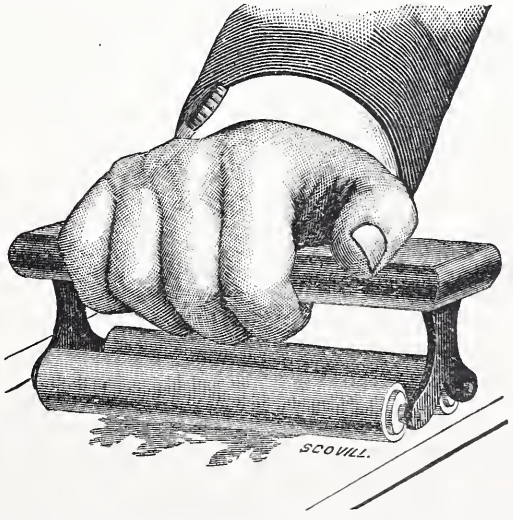
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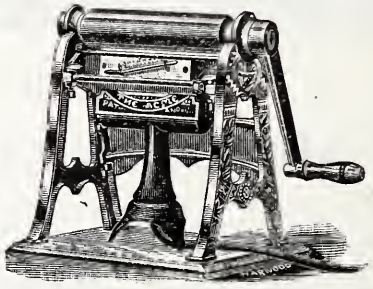
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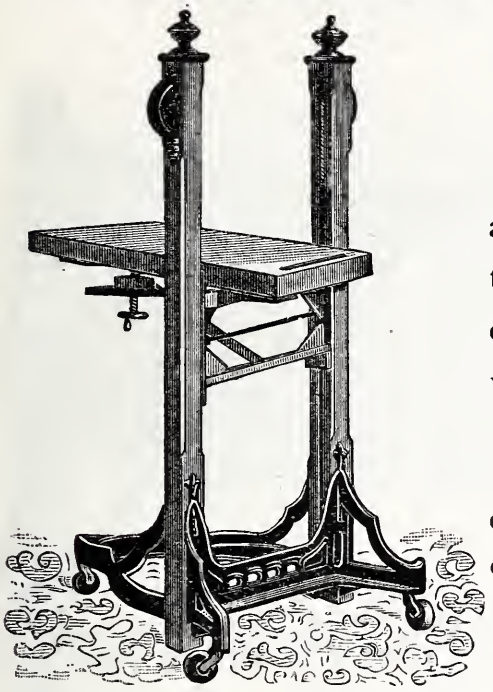
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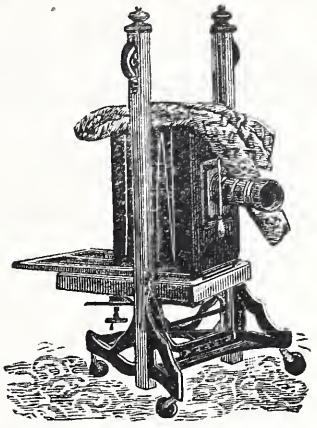
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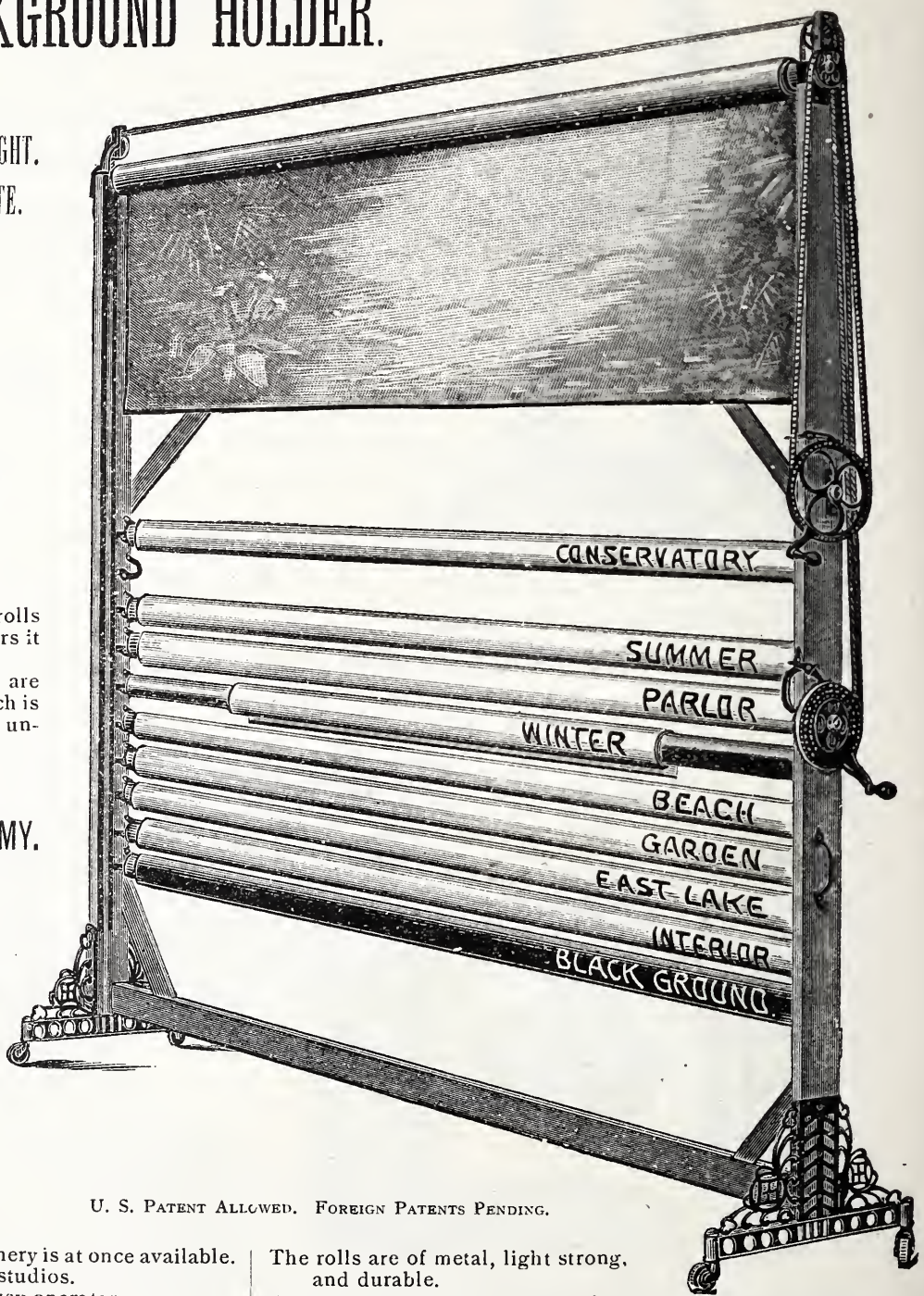
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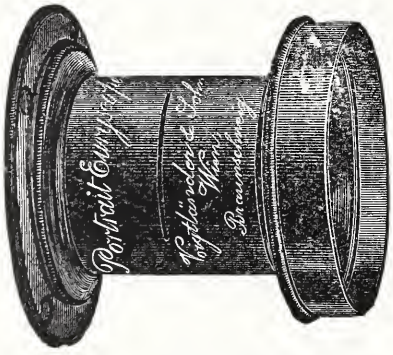
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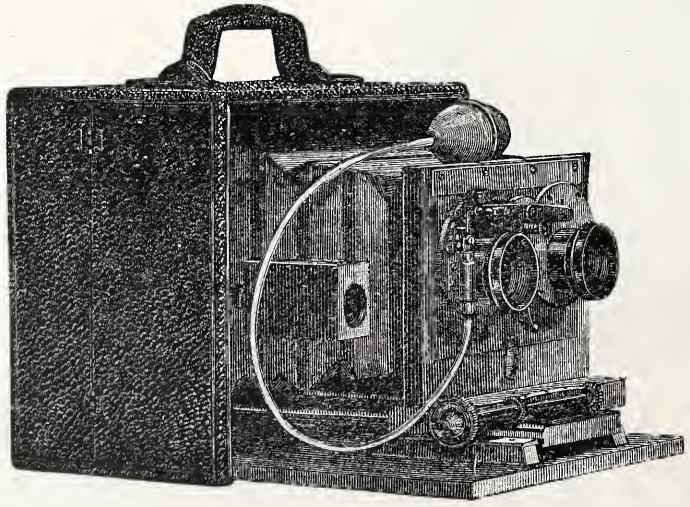


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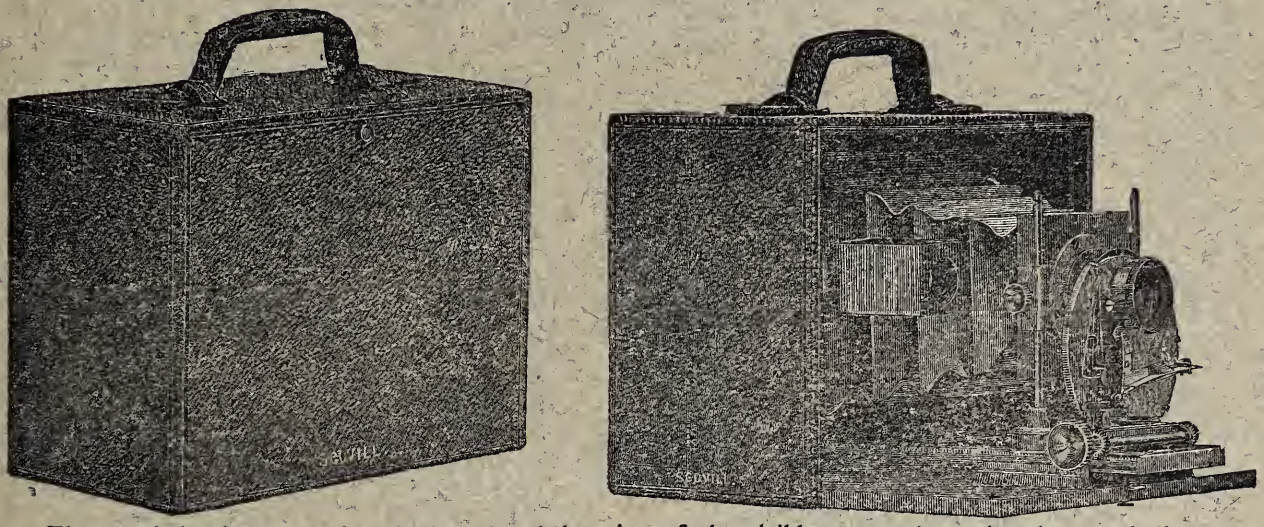
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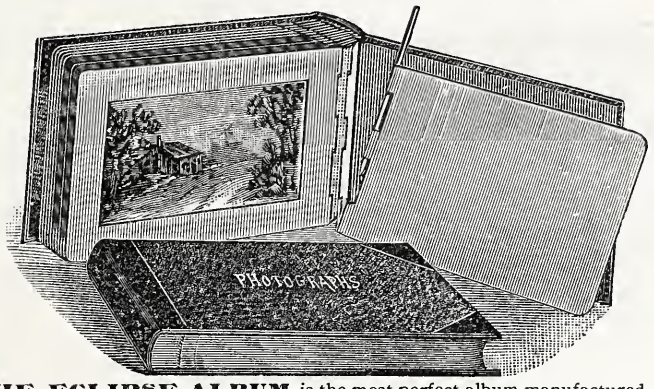
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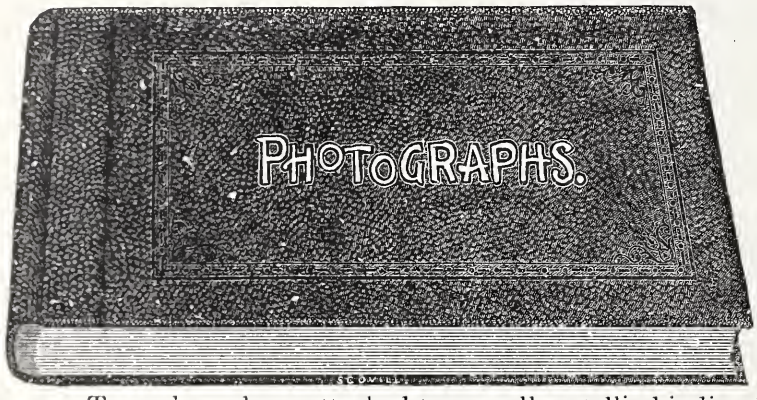
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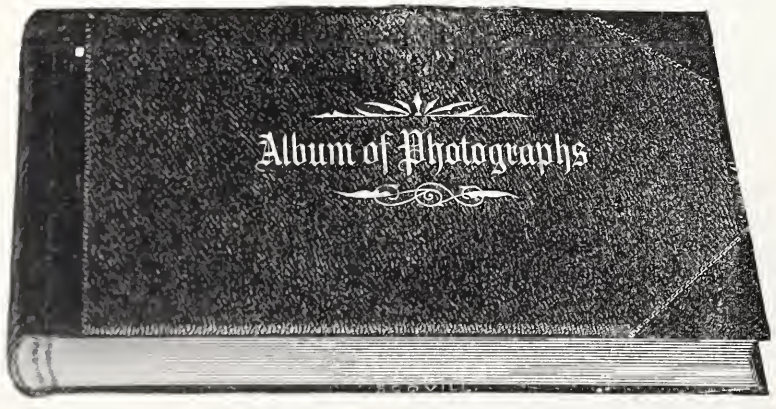
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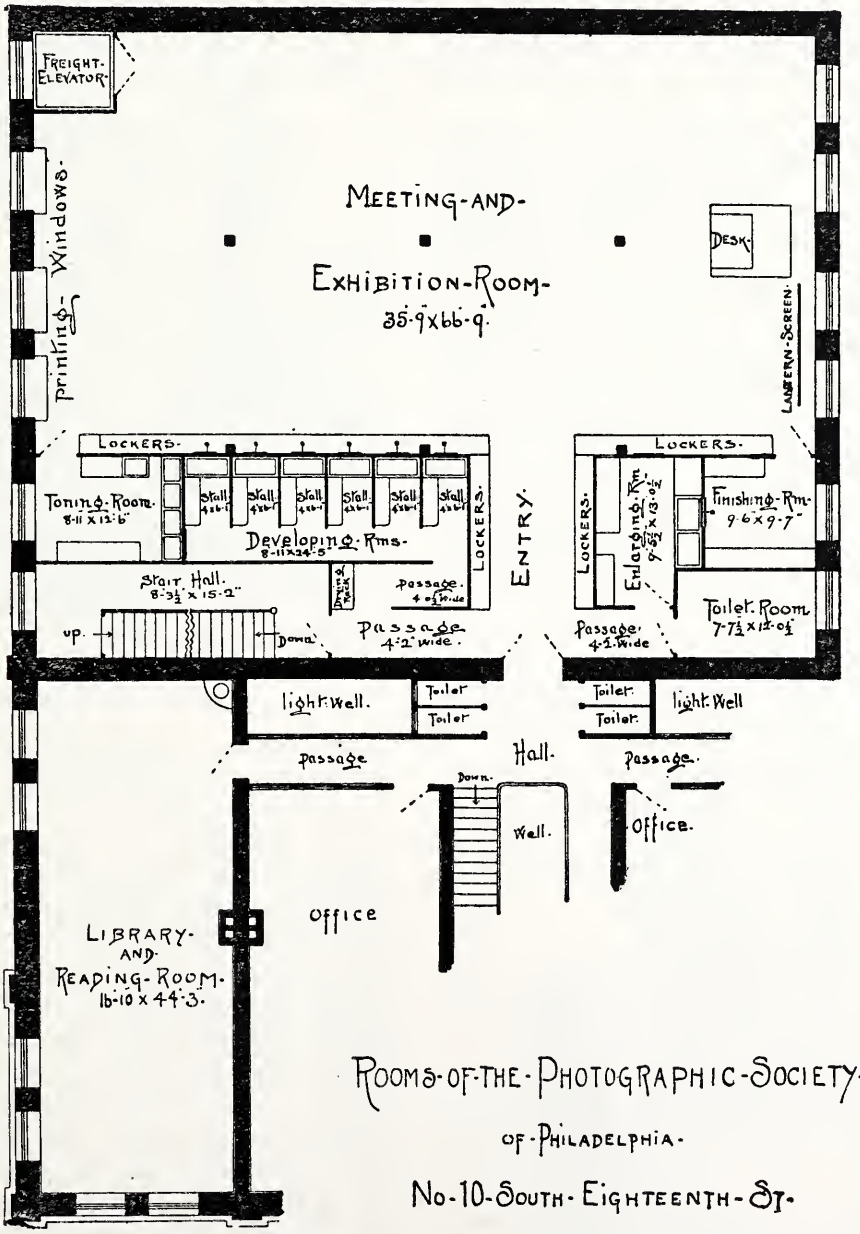


F. Gutekunst, Photo. and Engr.

Walt Whitman

way, that everything which we did see greatly pleased us. In fact we do not know just how Mr. Carbutt's arrangements could very well be improved for the purpose of making dry plates. A copious supply of purest water is at hand, and of a uniform temperature throughout the year. The coating room is entirely surrounded by the rooms for packing, shipping, etc., so that it is impossible for the slightest vestige of white light to reach them. The drying closets are in absolute total darkness. The building is constructed of brick, with every precaution against fire, and in the spacious lot which surrounds it plenty of light and air are secured. Its proximity to the railway makes the shipping facilities of the very best, insuring prompt shipments of all orders. In a word, every advantage necessary for the making of the best and most uniformly reliable dry plates is embodied in Mr. Carbutt's model factory at Wayne Junction.

THE new rooms of the Photographic Society of Philadelphia, at No. 10 South 18th Street, as shown in the accompanying diagram, are certainly very



Rooms of the Photographic Society of Philadelphia
No. 10 South Eighteenth St.

convenient in every respect. The library and reading room is a distinct and separate apartment, where the members may quietly read the photographic publications or write their letters. The room is comfortably furnished and contains many things of interest. The collection of photographic publications is very complete, including bound volumes of all the leading photographic periodicals of this country and Europe. The walls are orna-

mented by enlargements and other photographic pictures, many of them of great interest.

The main apartment is much larger. A room originally about 50 x 70 feet has been subdivided by partitions into a meeting and exhibition room, 35.9 x 66.9, with windows on two sides; a developing room, 9 x 25; printing room, 9 x 12.6; enlarging room, 9 x 13; finishing room, 9.6 x 9.7, and toilet room, 7.6 x 12.0.

The meeting room is lighted by chandeliers, and has border lights for illuminating the walls in case of exhibitions.

The developing room is fitted up with stalls on the same plan as the New York Society, illustrated in the "Annual" for '91. The lights are outside in the meeting room. A number of lockers are provided also in the main room. The toning room has sinks and tables, as has the enlarging room.

One excellent feature of the exhibition room is the height of the ceiling, which permits the lantern pictures to be projected from the back of the room, above the heads of the audience, upon the opaque screen in front.

The fitting up of the rooms has cost nearly $2,000, and the results are most creditable to the officers and committees.

AN international exhibition of photography will be held under the auspices of the Syndicated Corporation of the Manufacturers of and Dealers in Photographic Specialties and Cameras, from April to September, 1892, in the World's Exhibition Buildings, Paris.

The exhibits will be divided into eight groups as follows:

Group 1.—History of Photography.

Group 2.—Scientific Photography; Astronomy; Micrography; Photo-topography; Medical and Legal Photography.

Group 3.—Artistic Photography—*Amateurs*.

Group 4.—*Professional* Art Photography; Negatives; Portraits; Landscapes, Views; Reproductions, etc.

Group 5.—Industrial Photography; Hollow and Relief Photo-Engraving; Photocollography; Photolithography; Photoglypty; Photochromy; Stereoscopy; Photography on Silk, Glass, Linen, Enamel, China, Ivory, Wood, etc.

Group 6.—Chemical Products and Photographic Specialties; Collodions, Films, Plates, Papers, Acids, Salts, Gelatines, etc.

Group 7.—Photographic Material; Optic; Mechanic; Cabinet Work; Leather Goods; Paper; Glass and Studio Requisites.

Group 8.—All Trades connected with Photography; Printing; Electricity; Lighting; Furniture; Exploration.

The awards will be distributed to successful competitors and will comprise ten diplomas of honor; twenty diplomas of gold medal; thirty diplomas of silver gilt medal; forty diplomas of silver medal; fifty diplomas of bronze medal; sixty honorable mentions.

All goods must be delivered in Paris, and carriage free before the 15th of March, 1892.

PHOTOGRAPHY FOR BEGINNERS.

THE following series of articles, as their title indicates, are intended for beginners. They were originally written by the editor of this magazine as a practical guide for the young amateur, and, in part, have already appeared in type, having been published in Home Department of *The Christian Union*.

Since then, they have been thoroughly revised, rewritten, and much enlarged. In their present shape it is hoped they will, to some degree at least, satisfy the demand which the management of this magazine are continually receiving, for "information for beginners." The series begins with an

HISTORICAL INTRODUCTION.

Photography is a child of the nineteenth century. With the steam engine and the electric telegraph, it is one of the three great discoveries which have made this century momentous. Its actual beginnings, to be sure, date earlier than the nineteenth century, but with the announcement of Daguerre's discovery, August 10th, 1839, the real history of photography may be said to commence.

That announcement was received with the wildest enthusiasm by every one. People flocked to Paris in great numbers to see the beautiful sun pictures which Daguerre had made, and also to learn how to make them. The French government awarded Daguerre an annual life pension of six thousand francs (about twelve hundred dollars) for his invention, and then generously gave the secret to the world.

The new process was called Daguerreotypy, after its inventor, and the business of making daguerreotypes soon became a flourishing one, not only in France and on the Continent, but also in England, and especially in this country. Many improvements were soon made upon the daguerreotype; in England by such men as Fox-Talbot, Scott-Archer, and Dr. Maddox; and in our own country by Professors

Draper and Morse, and a German, living in Philadelphia, named Langenheim.

The daguerrotype was not at all like our modern photograph. It was an image photographed upon a copper plate, which could only be seen distinctly by looking at it in a certain direction, and which required, at first, fully thirty minutes "exposure"

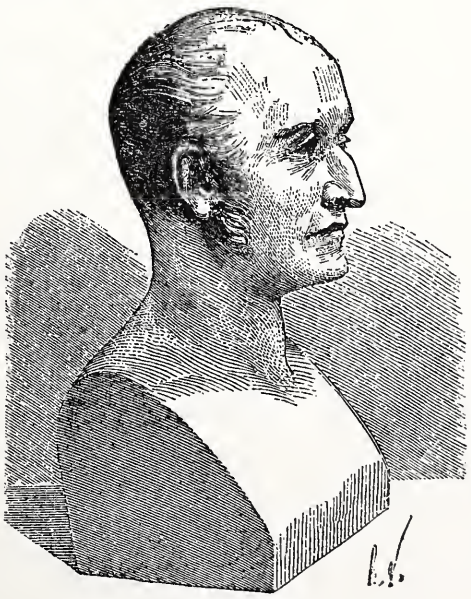


in the camera to be made. Think of sitting perfectly still before the camera for half an hour in order to have your photograph taken! And then you could have only one picture, and not, as now, a glass plate from which as many pictures may be printed as you desire. For every picture you wanted in those days you had to sit the full time, though the process was quickened soon after its introduction into general use.

A photograph can be made in these days in the hundredth, and even the thousandth, part of a second; and any number of pictures can be printed from one glass plate or "negative." The beautiful colors of nature may be photographed; not in the actual color-shades, it is true, but naturally and harmoniously, so that there is a difference in the shades as seen in the photograph. We can even make pictures at night by means of artificial light; and instantaneously, too.

All these wonderful things have been accomplished very recently, most of them within the last ten years, though they were foretold, and made possible by experiments, much earlier in the history of photography. But we are progressing too fast, and, before we speak further of the modern almost perfect photograph, should go back to the earlier days, and recall some of the inventions and discoveries which led up to it—even before the time of Daguerre.

Joseph Nicéphore Niepce, another Frenchman, was the first man to obtain a really permanent photograph, though his picture was not so perfect as that produced by Daguerre. Without the assistance which Niepce rendered Daguerre, however, that successful inventor could never have perfected his process. We therefore owe half our gratitude, at least, for the discovery of photography to this other Frenchman, who is so rarely spoken of and so seldom praised. The early experiments of Niepce were also the foundation of lithography and the kindred arts now so largely used in illustrating books and papers. Niepce invented a velocipede as well, which is the ancestor of our modern bicycle. In 1829 he made an agreement with Daguerre to continue their experiments together, and this partnership was maintained after his death by his son, Isidore Niepce, who inherited much of his father's genius, and received for the joint invention, from the French government, four thousand francs (or about eight hundred dollars) when Daguerre was awarded his pension of six thousand francs.



JOSEPH NIEPCE.

The camera was invented by an Italian named Baptista Porta, much earlier than this, though it was not used for photographing. It was in reality merely a dark-room which the light was admitted through a little round hole in one side. The rays

of light coming from objects outside of this room entered it through this aperture and made a picture on the other side of the room, glowing in all the beauty and color of nature itself, but rather indistinct, and upside down.

This dark-room was contrived by Porta about the middle of the sixteenth century. He improved it, later, by placing a glass lens in the aperture, and outside a mirror which received the rays of light and reflected them through the lens, so that the image upon the opposite wall within was made much brighter, more distinct, and in a natural or erect position. This was really the first camera-obscura, an invention which is enjoyed to the present day, being situated often upon a hilltop where a picturesque country surrounding may be reflected through a lens which is placed in the center of the conical roof.

Now, our modern photographic camera is merely a small camera-obscura in its simplest form, carrying a lens at one end, and a ground-glass screen at the other. It is, however, often much more complicated in its construction, as we shall learn in the following chapter, where the subject of apparatus is taken up in detail and thoroughly described.

(*To be continued.*)

ALBUMEN.

The white of eggs consists of transparent cells holding the albumen. When beaten to a thick froth the membranes (fibrine) are for the most part separated, and one obtains a liquid having an alkaline reaction, which contains about 12½ per cent. of albumen, water and chloride phosphate, carbonate of sodium, phosphate of calcium, saccharine matters (according to L. Troost), and traces of non-oxidized sulphur.

When this complex compound is treated by a soluble silver salt a not less complex mixture is obtained, consisting of the various silver salts formed by double decomposition with the acid radical of the above alkaline salts. the whole being held by the coagulated albumen, which itself forms an organic silver salt termed *silver albuminate.*

Every one of these silver compounds are sensitive to light. They are more or less completely reduced to metallic state by long insolation. It is for this reason, but principally to obtain glossy and brilliant positive images, that albumen is employed in photography.*

* The combination of albumen with silver was lately contested. On what ground, it is not said, nor are any experiments reported. To question thus at random the results of the investigations of Scheele, Berzelius, Liebig, Dumas, Payen, Berthelot, Laurent, Roscoe, Sherer, Mülder, Ruling, Thénard, Chevreul, Lehmann, Wurtz and many other chemists of not less authority, who have made a special study of albumen, is a great temerity.

To prepare pure albumen the white of egg is beaten with twice its volume of water in order to break the cells open; then after filtering through flannel to separate the solid matters, one adds to the clear liquid a filtered solution of lead acetate; a precipitate of lead albuminate is at once thrown down, which is first washed, then suspended into distilled water. Now by passing through the liquid a current of carbon dioxide the lead albuminate is decomposed, the metal being precipitated as a carbonate and the albumen liberated dissolving in the water.

The albumen, however, still contains lead. To completely eliminate it, the liquid is filtered, a few drops of hydrosulphuric acid are added to it, when it is carefully heated until the albumen commences to coagulate; the first flakes formed entangle the lead sulphite, and the liquid being filtered and evaporated at 40 deg. C., leaves a residue of pure albumen (Wurtz).

According to Wurtz, albumen is a compound of

Carbon	52.9
Hydrogen	7.2
Nitrogen	15.6

Mülder found nearly the same constitution, *plus* traces of sulphur, about 0.05 per cent.

Desiccated albumen is an amorphous yellow and transparent mass without taste and odor. Its reaction is acid (Wurtz). It absorbs oxygen from the air in evolving carbon dioxide, and if water be present it soon undergoes the putrid fermentation, and is converted into a ferment which can produce the alcoholic fermentation of sugar.

Dry albumen is not made insoluble by heat. Dissolved in water it becomes cloudy at 65 deg. C., and coagulates at 75 deg. C. The coagulation of albumen by heat is utilized to clarify many solutions—those of gelatine, for example—because the albumen previously dissolved in the liquid entangles in solidifying all the matters in suspension.

Most of the strong acids coagulate albumen—Nitric, chromic, citric, metaphosphoric acid. The latter is often employed to stop hemorrhages. Alum, tannin, alcohol are also employed for this purpose.

Phosphoric, acetic and tartaric acid do not precipitate albumen, but form gelatinous solutions.

Hot and concentrated hydrochloric acid dissolves it, and colors it violet with formation of *santonine.*

Albumen insolubilized by acids dissolves in potassa, and by eliminating the latter by dialysis the albumen becomes soluble again.

Nearly all the salts of the metals proper form with albumen insoluble compounds termed albu-

minates; such are mercuric chloride, lead acetate, copper sulphate, silver nitrate, potassium ferrocyanate, and the oxides of barium, calcium, strontium, silver, etc.

The albuminates of the alkalies are the only ones soluble.

The silver albuminate is reduced by light and even undergoes decomposition in the dark, the changes occurring more rapidly in presence of moisture.

Alcohol (methylic and ethylic) ether, creosote, and aniline coagulate albumen.

Dry albumen is prepared by the spontaneous desiccation of the whites of eggs, to which a little aqueous ammonia should be added to prevent putrefaction.

The properties of serum or blood albumen are similar to those of egg albumen. It is insolubilized by alcohol, not by ether. Concentrated and hot hydrochloric acid does not dissolve it. It is coagulated by creosote and aniline, and forms insoluble albuminates with most of the heavy metals, lead, silver, etc. Its constitution, according to Dumas and Cahours, is the following:

Carbon	53.3
Hydrogen	7.3
Nitrogen	15.7

plus traces of sulphur according to Mülder and Ruling. This analysis differs but little from that of egg albumen.

The vegetable albumen possesses the same properties as the animal albumen. In fact, its constitution is identical, as Mülder demonstrated by numerous analyses.

Albumen is the best antidote for the salts of mercury and copper (Orfila).

P. C. Duchochois.

THE CHEMISTRY OF PHOTOGRAPHY.

(*Continued from page* 73.)

CHAPTER II.—*Continued.*

"The absorption of oxygen, or rather its combination with the decomposing chloride, is proved by another very easy experiment. Some pure chloride of silver was arranged in a bent tube closed at one end, and the other end immersed in a bottle of distilled water. In this state the chloride was exposed for many days to the action of sunshine, during which time it was frequently shaken, for the purpose of exposing the whole of the powder to its influence. As the chloride darkened, the water rose into the tube, and it gave a precipitate of chloride of silver on the addition of the nitrate, thus appearing to prove the substitution of oxygen for chlorine under the agency of solar radiation. It was quite evident that some absorption of atmospheric air had taken place. This explanation will also serve for the iodide, bromide, and some other salts of this metal."

Some thirty years after Hunt, the oxychloride theory was taken up by Dr. W. R. Hodgkinson, now Professor of Chemistry at Woolwich. He remarks:* "As a chemist only, reasoning from Abney's experiment with silver chloride in a perfectly dry state, that it undergoes no change on exposure to light, but only when water or substituted water is present, I thought it extremely likely that the colored substance was an oxychloride produced by the oxygen of a water molecule replacing chlorine in one or more molecules of silver chloride."

The probable chemical formula which Hodgkinson gives for the oxychloride is Ag_4Cl_2O; the corresponding formula for the oxybromide being Ag_4Br_2O; and for the oxyiodide, Ag_4I_2O.

In an ordinary dry-plate, the gelatine is far from being perfectly dry; there is moisture, moreover, (water vapor), in the air which is in contact with the surface of the plate. The following formula will explain the chemical change which is believed to take place on the supposition that oxygen forms a part of the latent image:

$4AgBr$	+	H_2O	=	Ag_4Br_2O	+	$2HBr$
Silver Bromide	*and*	Water	*produce*	Silver Oxybromide	*and*	Hydrobromic Acid.

The hydrobromic acid set free probably combines with part of the gelatine.

The chief objection to this "oxygen" theory is that the silver haloids darken quite readily when exposed to light beneath liquids or gases which contain no oxygen, such as benzene or hydrogen. Of course it may be said that the dark "photo product" is in such a case different from that which we get under other conditions; but the weight of evidence is to the contrary.

On this question Bothamley remarks:† "It is very difficult to believe that a silver oxychloride could form in presence of strong nitric or hydrochloric acid. It is also important to observe that the supposed oxychloride is not a reduction product of silver chloride, but a substitution product; the quantity of chlorine and oxygen in the formula given being sufficient to neutralize all the combining power of the silver. Silver oxide is known to be readily reduced to the metallic state by

**Photo. News*, 1887, p. 370; and 1888, p. 531.

†*Journal Camera Club*, 1890, p. 114.

developers; and if we assume that this reducibility of the oxide is transferred to the oxychloride, which would be the case if the compound had the constitution represented by the formula given (Ag_4Cl_2O), the formation of the oxychloride would certainly explain the production of an image on development. On the other hand, it is equally well known that silver oxide is very readily attacked by acids, and it is not easy to see how an oxychloride could retain the instability of the oxide in presence of reducing agents, and yet offer so great a resistance to the action of acids If further experiments prove that the darkened products are really an oxychloride and an oxybromide respectively, it is not at all probable that they will have the constitution which has been suggested."

W. Jerome Harrison.

(*To be continued.*)

THE GHOSTLY SITTER.

A PHOTOGRAPHIC STORY.

SAM WESTERLY was not one of the photographers who give themselves trouble about the art aspects of his craft; he knew a good photograph when he saw it, and, when he had a good subject, made one; he had a good business for a country town (if that is not a misnomer, as being town and country may hardly be reconciled) made a fair living, laid up a little money, was an honest man and had no nonsense about him, as people say of those who have no imagination, no trouble with their digestion, and always call a spade a spade, and a photograph a photograph. He did very little reading, preferring to see things to reading about them, paid no attention to politics, and had no passion for new doctrines or things, except in the way of developers and dry-plates. He, however, had a wife and the beginning of a family, and on Sunday went to church in the morning, partly for respectability and partly to show these possessions; but after his midday dinner on that day of rest he went to the studio and pottered about, trying experiments, testing the last developer or such like ventures, which, as he was not paid, he reckoned to be no infraction of the commandment.

One afternoon in August, as the day was cooling off and he had been at work in his shirt-sleeves testing a new brand of plate, guaranteed quicker than anything ever before produced, he was surprised to find in the studio, when he came out of the dark-room, after a rather long trial of simultaneous exposures, that a man was waiting for him in the sitter's chair. The surprise was natural because he supposed he had locked his outer door, as was his custom on Sunday afternoon to keep out visitors who might be disposed to avail themselves of his refusal to make money on the Sabbath, or interfere with his experiments in some other way. But there the man was, and Sam explained to himself that he must have left the dook unlocked by some blunder of the key. He did not know the man, had never seen him before, and he had the air of a stranger to the place, but Sam was struck by the curious gray look about his face, a sort of faded tone, that suggested to his practiced eye a sulphurized print or one that had never been perfectly washed after the toning and had been faded a little by the trace of hyposulphite. He seemed ill at ease and as if disposed to apologize for his existence, to say nothing of his presence in the studio on Sunday; he fidgeted about in the chair but made no attempt to rise from it, and finally said in a sort of washed-out voice, or so it struck Sam, "I would so much like to be photographed, sir, and as I know you don't take people on Sunday, I thought you'd be willin' to take me." Sam replied in a mild sort of irritation, not inconsistent with the the character of the day, "I don't do business on Sunday—I never make the Sabbath the source of profit." The visitor replied, as if that hadn't touched his case, "Well, you know that's what I thought, and as I can't pay you that needn't be an objection. My wife, she's awful anxious to have my picture, and I can't pay no how, for we don't have a cent, and I'll thank you a thousand times, sir; 'twould be a real work o' marcy to do it—you don't know, sir, how she'd be obliged to you." He looked so pitiful and so earnest, and a certain something won on Sam so as he watched him and heard him talk in that thin thread of a voice, that Sam finally said, "All right, I'll do you, but don't tell anybody." He went into the dark-room, put two of the last brand of plates in one holder and two of the old kind in another, and came out, finding the sitter in the same position he had left him in, which happened to be a good one for the kind of man he was; and Sam exposed the four plates in rapid succession, carefully timing them, thinking he would get a good experiment out of it any way, and said to the sitter as he went back, "I'm sure to have one of the four all right; I shan't need you to sit again."

He put the first plate in the developer and watched it carefully, as was to be done in a careful experiment, strengthened the developer, then rubbed his eyes as he saw a chair coming out, but no sitter. "Confound it, I have taken a plate I had used before on the chair, and I must have forgotten to

draw the slide when I opened the lens." Then he tried the second and found the chair coming out slowly but no gray man in it; then the third, and the fourth—all alike, chair enough but nobody in it. Sam's head swam a little—he was puzzled, looked at the plates one after the other and saw not even a bit of mist; the background was plain enough and the plate was not even fogged. He went back into the studio and the man was gone—he rushed down to the outside door and found it locked and bolted in the bargain, as he usually left it Sunday afternoons; nobody had passed that way for sure, and there was no door from the store underneath to get into the staircase—the only window in the studio was the large top-light. Sam sat down—in another chair from that which the sitter had occupied—and reflected. The only outcome of his reflection was that he never put his foot in the studio again on Sunday, and he never explained to his wife what had upset him so that particular Sunday. But to this day he has never been able to understand why the lens did not see the man he saw, even if it was a ghost, and as the ghost forgot to leave his address when he was in the flesh, Sam was unable to explain to the widow why he did not succeed in getting a photograph of the late Mr. Blank.

W. J. Stillman.

ISOCHROMATIC PHOTOGRAPHY.

(A Paper read before the Holborn Camera Club.)

In discussing the comparative merits of photography and drawing as delineators of nature, an unthinking mind would doubtless award the palm of accuracy to photography. Those who know most of photography will, with regret, be the most ready to acknowledge the untruth of such a decision. Our tools limit our capacity to an extraordinary degree, and it does not take a student of photography long to discover wherein lie its defects. Lenses too often give untruthful form, whilst plates translate color erroneously. Both faults are capable of some degree of correction, and some few practical ideas on the question of color correctness may advantageously be considered to-night.

Isochromatic photography has had many champions and many opponents, but few are brave enough to say to-day that it is not one of the most important strides that photography has made recently. It may, of course, be readily admitted that we have not as yet reached anything like perfection, but it is the initial step in the right direction, and, like the child who begins to walk, having once started off, may hope to rapidly gather power to take further strides, until our progress is fully developed.

The eye looking at these colored papers sees, apart from the color itself, certain intensities of light reflections, and judges that the blue is the darkest, the yellow the lightest; photograph these with an ordinary plate, and we have these intensities reversed. The sensitive film is more impressed by the blue rays and less by the yellow, and a print from a negative of such a color scheme gives yellow as almost black, and blue as almost white, with gradations of difference in the intermediate colors.

Probably every owner of a camera has experienced the almost inevitable disappointment which marks his earliest efforts in landscape work. He sees on his ground glass a scene full of all that goes to make a picture, and this transcript lacks too often all those qualities. It is not that this photograph lacks color (that he would expect), but it is the fact that it lacks true translation of color into monochrome, that robs the view of its value. We may say that correct exposure and correct development can alone give true gradation; but that is only half the truth, and we lack a still further requisite in color-correct plates. Take a very common subject—for we all take our cameras to the seaside—sea, sky, and yellow sands. A photograph of such a subject is usually as flat and unreal as can be; all the three divisions of our subject are rendered as if all one or nearly so, and any difference there may be is in the wrong place; sky will be a patch of white, and sand a dull, dark mass of uniformity. Looking from the scene to its transcript, you see these color values exactly reversed, Hence are seascapes, unless enlivened by scudding clouds, dashing waves, or passing vessels, usually so tame and monotonous, and so unlike the reality.

Crookes', Vogel's, and Tailfer's Work.

Professor Crookes many long years ago found this photographic disability, and took the first step to remove it, by suggesting the use of a screen of light yellow glass, which depressed the blue rays and allowed the yellow to have greater effect on the plate. This was the first step towards what is now known as isochromatic photography. Many an old photographer has been an unconscious supporter of this principle when he has expressed his affection for an old lens which he has had in use for many years, the truth of the matter being that either the glass or the balsam with which the combinations were cemented, or both, had become slightly yellowed by age, and gave him an improved rendering of his subject; but this was only less

than half the battle, and, until plates were more sensitive to the rays at the other end of the spectrum, it was impossible to say that any approach to perfect color-correct translation was obtained. Dr. Vogel is undoubtedly entitled to the credit of making the first suggestions and experiments with what may best be termed selective sensitizers; and, although his experiments were founded on wrong hypotheses, his methods were right. He was under the impression that dyeing the film was the only requisite; but it is manifest, in the light of our present knowledge, that this was only another method of using a yellow screen. The dye was more than that, and in fact altered the color sensitiveness of the silver salt. Dr. Vogel's experiments were made with collodion, and whatever was done in the same direction, if anything at all was attempted, with gelatine plates, was found absolutely ineffective until Tailfer took the matter in hand, and after years of elaborate experiments brought out his process, which forms the essence of the present-day system of isochromatic photography, as recognized now throughout the whole world.

Every attempt that ingenuity and money could suggest has been made to get behind his patent, but without avail. England, France, Germany, and America have all purchased his rights, and the only isochromatic plates that are made in the world to any practical extent are made under license from him. Although for over eight years now the world of experimentalists have been at work trying all the dyes that recent researches have rendered available, every one has been forced to admit that the eosine group is not only the best, but the only one that will give practical and commercial results; and, further, that without the aid of ammonia even those eosine dyes are useless for practical work. No better proof of the stability of Tailfer's claims to priority and perfection could be given than this eight years of constant but unavailing endeavors on the part of scientific and practical men to upset his claims.

PRACTICAL TESTS.

I may say that, in common with many others, I had a certain scepticism of the advantages of isochromatic methods until about a year ago, when, in an idle moment, I undertook to test the thing for myself. My first experiment convinced me of my error, and I propose to repeat that experiment to-night, as it seems to me the most conclusive argument that could be used in support of the advantages obtained by the use of "color-correct" plates. This crucial experiment may be instructively extended, and in no direction more advantageously than in the combination of isochromatic plates with the use of yellow screens.

Such a scene as the seascape I have imagined, landscapes with evening or morning light, where yellow tint prevails, views with hazy distance, and other similar conditions, render screens entirely unnecessary; but where we have ordinary landscapes, practically bathed in nothing but white light, then a light and correct screen is necessary.. Even if there is a good deal of yellow or green in the subject, it will be so subdued by the flood of white light reflected from the surface of the various objects, that their intrinsic colors will have but little value to affect the plate. Screens then have their legitimate and, we may even say, necessary use, for they serve to depress the blue rays without affecting the greens and yellows. In the experiment just carried out, it will have been seen that an isochromatic plate is more fully sensitive to the green and yellow rays, and less so to the blue, than the ordinary plate, whilst even in the red there is a slight advantage, for we see the isochromatic plate has a little detail where exposed under the ruby glass. We easily see from this how necessary it is for a proper and safe light to be used for our dark-room illumination. Yellow light is clearly quite unsuitable, and even when we come to ruby, we must be careful to have a good ruby, and not too much light behind it.

Another example of the difference between ordinary and isochromatic plates may be further evidence of the advantages of the latter. Taking some slips of colored paper arranged thus—orange, light yellow, dark yellow, light blue, dark blue—we find with an ordinary plate that the dark yellow and dark blue are rendered equally intense; the light blue is practically white, whilst the orange is made to appear lighter than the yellow. A print that I show will exhibit the falsity clearly.

THE YELLOW SCREEN.

Now, taking the same subject on an isochromatic plate, we have a much-improved result; the various intensities are more truly rendered, and when we examine the same subject taken with a light yellow screen, we get absolute truth. It is apparent that we can go on increasing the depth of the screen, and get over-correction, until the blues become too dark and the yellow quite white. It is of the utmost importance, therefore, to be sure that a screen of proper tint is used, where we do use one at all, and I may say that we shall take all responsibility off your shoulders in this matter, and supply such screens as will be just correct for the purpose, and no more. They will be of two shades; the lighter will need the exposure pro-

longed for two and a half times, the darker for five or six times. In order to avoid the necessity and expense of having a separate screen for each lens, they will be of such form that they can be used for any lens. This is effected by using them in a specially designed simple frame behind the lens, so that the screen can be slipped in readily, and exposures made without trouble. This simplification will do away with one of the troubles attending the use of screens, and it will be as easy to take pictures with as without them. Of course, an extension of the time of exposure will be necessary, but, when we count our usual exposures by fractions of a second, twice or three times that will not be appreciably felt.

Another point about screens is this: they must be optically worked and free from flaws, otherwise we shall have distortion. It is quite plain, if the glass is wedge-shaped, that the rays will be interfered with; and if the glass is either concave or convex, it will form a lens and interfere with the focus. It is wonderful how small a defect of this sort will throw the focus out to the extent of a quarter of an inch. If the screen has sides that are absolutely parallel, then we need not fear any danger. Even if the glass is not exactly parallel to the lens, no harm will be done beyond shifting more or less of the image out of the field, according to the angle at which the screen is inclined.

It will be seen, then, that the advantages of isochromatic plates under almost all circumstances are considerable, and in many cases they are incalculable. In dull weather, as in autumn or winter, the sensitiveness of isochromatic plates to yellow, greens, and orange gives them very considerable advantage over ordinary plates, both for outdoor and studio work, and enables shorter exposures to be given with improved truth of result.

In photo-micrography, in copying, in taking snow scenes, and in other special work, no other plates are permissible; and there is one other branch of photography that has made immense strides owing to these plates—I mean the photography of cloudland. The inherent difficulty of truthfully rendering the blues and whites has been a bar to progress, but with isochromatic plates all this is altered, and clouds are as easy to portray as any other subject. Still another point of advantage found with isochromatic plates is the greater freedom from halation.

Enough has been said to prove that "color correctness" in plates is both a decided step forward in the art-science of photography, and a matter that is well within our reach without trouble or difficulty.

John Howson.

A GOOD IDEA.

To the Editor of THE PHOTOGRAPHIC TIMES.

Dear Sir: In your issue of November 20, 1891, is a letter from R. Clinton Fuller, of the Providence Camera Club (R. I.), in which he details the clubs of the "New England circuit," and says: "We are looking for something pretty good the coming season, particularly from "Mystic" and "Portland." What he refers to is the lantern slides of the various clubs, and "Mystic" is the Mystic Camera Club, of Medford, Mass. Last year "Mystic" sent out a series of fifty slides illustrating Medford—historic and picturesque. That the series was well received is evident from Mr. Fuller's remarks. The Mystic Club believes that the mission of the camera club in sending out "slides" is something more than to give a set of fifty (more or less) pictures which may or may not have any connection with each other, as is too often the case with clubs. This year they have prepared a set of fifty-two slides, and have taken as their subject "Paul Revere and His Midnight Ride." They have aimed in pictures and lecture to give a brief and concise biography of Paul Revere and his valuable work for the Colonies in their struggle with Great Britain; his services as patriot, artisan, mason, engraver, military and civic leader are all touched upon, and, as far as possible, illustrated. The Lynn Club was the first to have the opportunity of giving it to their friends, and they made a gala night of January 22d, getting up a souvenir booklet of the poem—treating those who were present to "Revere" coffee, from the house of Howard W. Spurr & Co., Boston, and one of the Lynn papers the next day gave over a column to a description of the lecture and slides. The Boston Club had given us the White Mountains illustrated, Chicago Club Chicago illustrated, California Club the Yosemite Valley. Let other clubs fall into line, talk the matter up, agree upon some subject, make slides and write a lecture to illustrate that subject; and when the people who are so ready to sneer and laugh at the camera "crank" and "fiend," as they call him, find that the camera and the lantern slide are not the end, but simply the means to an end, and that end to instruct, as well as amuse, we shall have less condemnation of the amateur photographer, clubs will gain in membership, and the standard of photographic work and thought will be surely raised.

Yours truly,

"Mystic."

BOSTON, February 1, 1892.

Notes and News.

Zimmerman Bros., the photographic merchants of St. Paul, Minn., have issued a very neat calendar for 1892.

A camera club was organized in Pittsfield, Mass., on Monday evening, February 1st, with a membership of about 50.

The Annual Dinner of the Photographic Section of the American Institute will be held at Clark's, Twenty-third Street, opposite the Fifth Avenue Hotel, New York, Thursday evening, February 18th, at seven o'clock. Tickets, three dollars, may be obtained at our publication office.

Resigned.—It is reported that W. G. Entrekin has resigned as President of the Photographers' Association of America.

The Stevens Photographic Society gave a very interesting lantern-slide exhibition Monday evening, February 8th, at the Stevens School Building, corner 6th and River Streets, Hoboken, N. J.

All readers of THE PHOTOGRAPHIC TIMES and others sending photographs to THE PHOTOGRAPHIC TIMES, are requested to write the name and address of the sender on the back. Otherwise, no notice can be taken of them.

The annual dinner of the Society of Amateur Photographers of New York will occur Saturday evening, February 27th, at the "Arena," 41 West 21st Street. The price of the tickets has been placed at $5.

Photographic Societies.

DEPARTMENT OF PHOTOGRAPHY, BROOKLYN INSTITUTE.

DURING the season of 1892 the Department of Photography of the Brooklyn Institute will hold special meetings for the benefit of the members of the department on Wednesday evenings. On the first and third Wednesdays of each month members will exhibit lantern-slides, and on the second and fourth Wednesdays lectures and demonstrations will be given on technical subjects.

The regular formal monthly meeting will be held on the evening of the last Monday of each month.

On Monday evening, January 25th, Dr. Henry S. Stearns, of New York, gave a very interesting talk on photomicrography before the department, illustrated by very fine lantern photographs.

A fine collection of lantern-slides, made from "snap shot" negatives by Major Starkley, and kindly loaned to the Section for the evening, were also shown.

On Wednesday evening, January 27th, Dr. L. M. Halsey gave a very good talk on plate making. He showed some plates which he had coated with an emulsion of his own make, and proceeded to make some lantern-slides from them by contact. Although developed with pyro, the slides proved to be very good.

The meeting on Wednesday night, February 3d, the regular night for testing lantern-slides, was well attended. Some very fine views made by G. W. Street, Geo. W. Wondram, H. P. Atkinson, Edward Rice, Gould W. Hart and others were shown on the screen.

The Editorial Table.

"Flash-Lights and How to Make Them," by Louis Clarence Bennett. Illustrated. New York: Published by the Author.

This is a little pamphlet of forty pages, written by an expert photographer. He treats the subject in a practical way, describing first the necessary apparatus, then telling how to make portraits by flash-light, full-length figures, babies, interiors, silhouettes, and concluding with some general hints. The price of this little work, in paper cover, is 50 cents. It will be post-paid to any of our readers on receipt of that price.

Pictorial Effects in Photography, by H. P. Robinson, New York: The Scovill & Adams Co.

A third American edition of this valuable work by H. P. Robinson has been demanded, and is now issued in neat cloth binding, uniform with the preceding issues.

This book is too well known to need any words of comment at this time. The price remains the same, $1.50 in Library edition.

Photographic Review of Reviews is the latest candidate for popular favor. It is an illustrated monthly periodical, edited by Walter D. Welford, at 47 Hagley Road, Birmingham, England.

We have received from Edward L. Wilson bound volumes of *Wilson's Photographic Magazine* for 1891, in two parts, for which we return our sincere thanks to the publisher-editor.

Insinuating Photographer (holding photographs in hand): "No, madam, you have never been successfully posed; none of these pictures do you justice."

Plain Lady: "I do not want justice, sir; I want mercy."—*S. and G. Weekly.*

Queries and Answers.

213 F. F., Ottawa, Canada, wants to know formula for combined fixing and toning bath, as described in one of the earlier editions of "Hardwich's Photographic Chemistry."

213 Answer.—Hardwich's 4th edition, page 158, has the following:

Take of

Chloride of gold	4 grains
Nitrate of silver	16 grains
Hyposulphite of soda*	4 ounces
Water	8 fluid ounces

Dissolve the hyposulphite of soda in four ounces of the water, the chloride of gold in three ounces, the nitrate of silver in the remaining ounce; then pour the diluted chloride by degrees into the hyposulphite, stirring with a glass rod; and afterwards the nitrate of silver in the same way. This order of mixing the solutions is to be strictly observed; if it were reversed, the hyposulphite of soda being added to the chloride of gold, the result would be the reduction of metallic gold; hyposulphite of gold, which is formed, being an unstable substance, and not capable of existing in the pure uncombined state. If, however, it be dissolved by hyposulphite of soda *immediately* on its formation, it is rendered more permanent, by conversion into a double salt of soda and gold.

In place of nitrate of silver, recommended in the formula, chloride of silver may be used.

* Other good formulas, similar in composition, you will find on page 65, "The Photographic Instructor," 3d edition, Scovill & Adams Co., publishers; or on page 89, "American Annual of Photography for 1892," published by the same firm.

THE PHOTOGRAPHIC TIMES.

AN ILLUSTRATED WEEKLY JOURNAL DEVOTED TO THE ART, SCIENCE AND ADVANCEMENT OF PHOTOGRAPHY.

Issued every Friday.

W. I. LINCOLN ADAMS, Editor.

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" " one month's trial..... 50

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Size of advertising pages, 6¼x9¼ inches; outside size, 8½x11¾ inches.
One page, each insertion.....$20 00
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Copy for advertisements must be received at office one week in advance of the day of publication. Advertisers receive a copy of the journal free, to certify the correctness of the insertion.
All literary contributions, correspondence, "Queries," etc., should be addressed to THE EDITOR; all advertising matter to the Publishers,

THE PHOTOGRAPHIC TIMES PUBLISHING ASSOCIATION,
423 Broome Street, New York.

Commercial Intelligence.

A LETTER TO MR. CARBUTT.

DEAR SIR: It will be a satisfaction to you to know that I have succeeded with the Ortho. Plates No. 27 you sent me, and have some very fine negatives, although most of the exposures were made under very trying conditions.

One exposure dead against the sun and heavy cloud banks, ten minutes after the sun had risen from the ocean, has given me a "Moonlight" ocean picture marvelous in its beauty. Projected by the lantern on the screen, it is as realistic as any picture I ever saw.

Yours truly,
T. S. Simmons.

Invaluable.—"I have five 'Annuals' in paper covers, and as I intend making an ocean trip to the coast of Africa, thence through the Mediterranean, I wish to take my 'Annuals' with me, as I think them invaluable in my camera work." Thus writes Alfred Tonks, of Kirkwood, Mo.

"We have to thank you very much for the Christmas number of your splendid journal, which we feel, we must say, is a long way in front of anything published at Christmas time in England," write Swift & Son, the opticians, of London, England.

The new Wooden Lantern Slides introduced by The Scovill & Adams Co. are very convenient and useful articles. They are sold at 50c. each, and will hold 18 slides at once.

The increasing demand for the "Henry Clay" Stereoscopic Camera seems to indicate that interest in this branch of photography is certainly reviving. The Scovill & Adams Company receive daily orders for the stereoscopic modification of this popular hand camera, and during the past week the orders for this style of the camera were in excess of those for the ordinary style.

As an indorsement to the illustration in "American Annual of Photography for 1892," entitled, "What a Waterbury can do," Mr. John E. Noyes, of Le Sueur, Minn., sends us several stereoscopic slides, made with a pair of Waterbury A lenses, some by timed exposure, others instantaneously taken. Among them we notice "A County Fair," with masses of moving people and horses. It is an excellent photograph in detail and brilliancy, and is rivaled only by "Sunshine and Shadow," a pleasing glimpse at a forest glen. "Dedication of a Monument in New Ulm" was taken in the twentieth part of a second with stop $\frac{f}{15}$, the weather very cloudy, threatening rain. Nevertheless the result is very fair.

Our correspondent does not seem to fully appreciate the quality of his own work, but we can assure him that the slides received can very well compete with others, made by more experienced men. We must advise him, however, to pay more attention to printing and toning.

On account of the increased demand for the "Hetherington" Magazine Camera, the manufacturers have decided to erect a large factory in Indianapolis, where the camera is made, to increase the facilities for manufacturing. Several improvements have been made in the camera, especially in the shutter.

The Third Edition of H. P. Robinson's "Pictorial Effect in Photography" is ready. Cloth bound, $1.50. Sent, post-paid, to any address on receipt of price by the publishers.

Pure Para-amidophenol.—Dr. Theo. Schuchardt, of Görlitz, Germany, states in a private letter that para-amidophenol hydrochlorate ($C_6H_4.OH.NH_2.HCl$) is an absolutely permanent substance, soluble in all proportions in warm or cold water. It is now manufactured in a perfectly pure state, crystalline and of absolute whiteness. Within a few days this new and perfectly pure developing agent will be for sale in large and small quantities by the Scovill & Adams Company.

"Could not be Better."—"Allow me to congratulate you on your 'Annual' for 1892. It is a splendid one and contains much information. The illustrations are very fine—splendidly done. In fact the whole thing could not be better," writes Thomas Mansell, of England.

The American Annual of Photography and Photographic Times Almanac for 1892.—The "American Annual" for 1892 now reaches us from the English publishers, Messrs. Hampton, Judd & Co. The general outline of the book is well known. It is, in fact, in general appearance more nearly approaching "Photography Annual" than any of our other English publications. The beautiful illustrations which have always been so strong a feature in this volume are even more numerous and more beautiful this year, and we notice the publishers have taken a tip from 'Photography Annual" by publishing a special article dealing with them all. So far as the matter matter is concerned, the book is a profuse collection of articles on various photographic subjects by a large number of photographers, both professional and amateur, and both American and European. Much useful information is given in its pages, and it will be found thoroughly up with the times. Its price is 50 cents, or 2s.—*Photography.*

Business Notices.

TWO GOOD GALLERIES for sale at a bargain; best location in New York; one on Sixth Avenue and one on Eighth Avenue. Good reasons for selling. Address
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care Govan & Crampton,
5 Clinton Place, City.

RODINAL.—The new developer—Para-amidophenol—in liquid form. A convenient one-solution developer. Mail orders promptly filled on all photo. goods. Address C. M. BROCKWAY,
33 Worth St., New York.

A RAPID RECTILINEAR LENS of the Bausch & Lomb make, covering instantaneously a 5x8 plate, for sale. $12.00, C. O. D. Address "LENS," care THE PHOTOGRAPHIC TIMES.

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Send for price lists.

GALLERY FOR SALE.—An old established studio in manufacturing city of 14,000 inhabitants. Large outside territory to draw from. First-class chance for a good man. Will be sold very cheap for cash. Those meaning business address for particulars
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360 Central Ave., Dover, N. H.

VOLS. 16, 18, 19, 20, 21, bound, of THE PHOTOGRAPHIC TIMES for sale. $10.00 cash. Address C. T. P., care THE PHOTOGRAPHIC TIMES. Cost $25.00.

THE UNDERSIGNED has a few 6x5 Dallmeyer Rapid Rectilinear Lenses which he will sell for 20 per cent from list prices. These lenses are a late importation and are all warranted. Address "TOURIST,"
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Terra Alta, W. Va.

THE '89 ANNUAL.—I have a paper-covered copy of *The Photographic Times Annual* for 1889, in good condition, which I will sell for one dollar ($1 00). ANNUAL, care THE PHOTOGRAPHIC TIMES.

WILL EXCHANGE an almost new Caligraph (Typewriter), in perfect order, cost $85.00, for a 5x8 Camera, double swing, good lens and accessories. Address
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FOR SALE CHEAP.—I will sell my Bridges' Photographic Flash Light Diffuser, which cost me $3.50, for $2 75, as I am going out of the business. The Diffuser has never been used. It is exactly as good as new. Address M., care THE PHOTOGRAPHIC TIMES.

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FLASH-LIGHTS AND HOW TO TAKE THEM! A complete treatise on Flash-Light work. Fully illustrated by Louis Clarence Bennett. Price, 50 cents. Order a copy now from your dealer, or send direct to
L. C. BENNETT, Mercantile Photographer,
69 Centre Street, New York,
for a copy. Developing and printing for amateurs and the trade. Lantern-Slides from your own negatives. Write for prices.

NO FUMING, NO BLISTERS.—Experiment with all the "papers" advertised, and learn. But when you want to make choice, spotless prints use WISSAHICKON SENSITIZED ALBUMEN PAPER. Tone it in compound bath and squeegee on ferro plate, if you like. Send 2 cent stamp for 4x5 sample to JOHN HAWORTH,
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THE finest-fitted Dark-Rooms in the United States are open for the accommodation of Amateurs, at 122 W. 36th Street. DARLING, Photographer.

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FOR SALE.—A copy of "The American Annual of Photography" for 1889, a few leaves of the standard formulas and all the advertisements wanting, will be sold for $1.00. Apply to
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OWING to dissolution of partnership and removal, we offer for February only OUR ENTIRE STOCK OF AJAX, LECLAIR, ECLIPSE AND FAIRY LENSES AT COST.

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4 x 5	$9 60	to $6 00
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(These advertisements are inserted free of cost to photographers out of employment, in order to help them find situations.)

SITUATIONS OFFERED.

A good printer and toner is wanted by Aimé Dupont, 574 Fifth Avenue, opposite "The Windsor."

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Position wanted by retoucher and colorist; European experience. Miss Morris, 217 W. 21st St., New York.

By an A1 printer; best of references. Address, until March 1st, H. E. Smith, 720 Market St., Wilmington, Del.

A first-class experienced printer and toner, reliable, energetic and thoroughly capable of taking full charge of printing department, is open for engagement; highest city reference and samples of work. Address Box 33, No. 152 Sixth Avenue, New York.

A permanent engagement with a responsible photographic studio; understand all branches, etc. Address Maire, 491 Superior St., Cleveland, Ohio.

Experienced photographer wishes position as operator, printer or retoucher, or would go as general assistant. Chas. L. Quickel, 115 S. Penn Ave., York, Pa.

Young man eighteen years' old desires a situation as assistant operator, with chance to gain experience in printing and toning; or would like to take position in either wholesale or retail photographic supply house. Nathan Traub, 1595 Seventh Ave., New York.

As retoucher and printer or general assistant; best of references from former employers. Address H. Haller, 628 White Ave., Brooklyn.

A young man, nineteen years' old, printer and toner desires a position where he can have a chance to learn retouching. Has the best of references and samples to show. John Myers, 321 Federal St., Camden, N. J.

A lady desires situation in reception room; experience of seveoal years and perfectly competent to take charge. Can furnish good references. Miss Emilie J. Tanner, 2620 Gamble St., St. Louis, Mo.

By good operator and retoucher, a steady place in good gallery; willing to go as general assistant; best of references. Theo. Bearlinger, 2338 Eighth Ave., City.

First-class retoucher, capable of taking full charge of gallery, wishes position out of town. Address Miss Raymond, 1162 Broadway, care Willis & Co.

By first-class man as general assistant. Good reference furnished. Address W. Swartz, 180½ Prospect Street, Passaic, N. J.

As operator, or head printer; ten years' experience. Address H. P., 92 Bergenline Ave., Union Hill, N. J.

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First-class printer and toner wishes a situation, city or country; best reference from leading houses. John Wenglein, 79 Greenpoint Avenue, Greenpoint, L. I.

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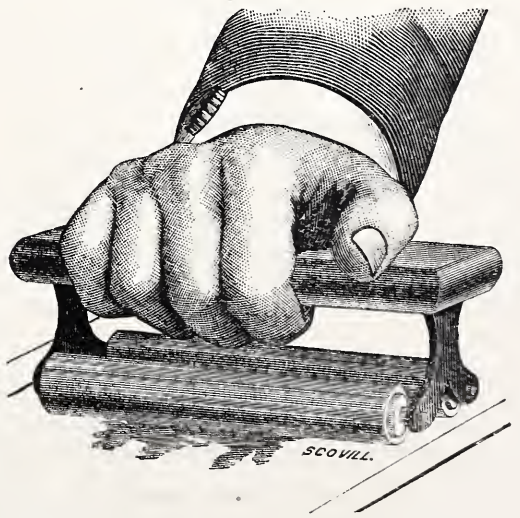
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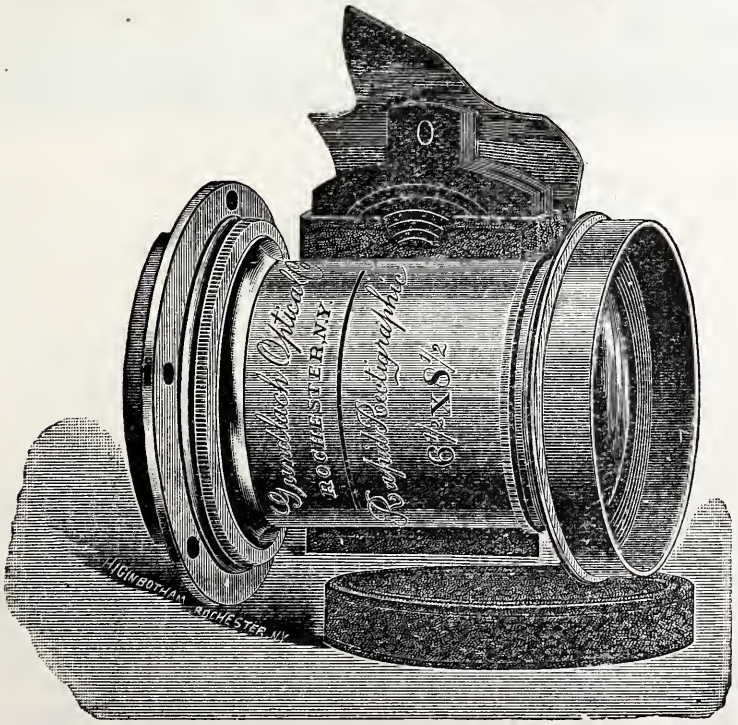
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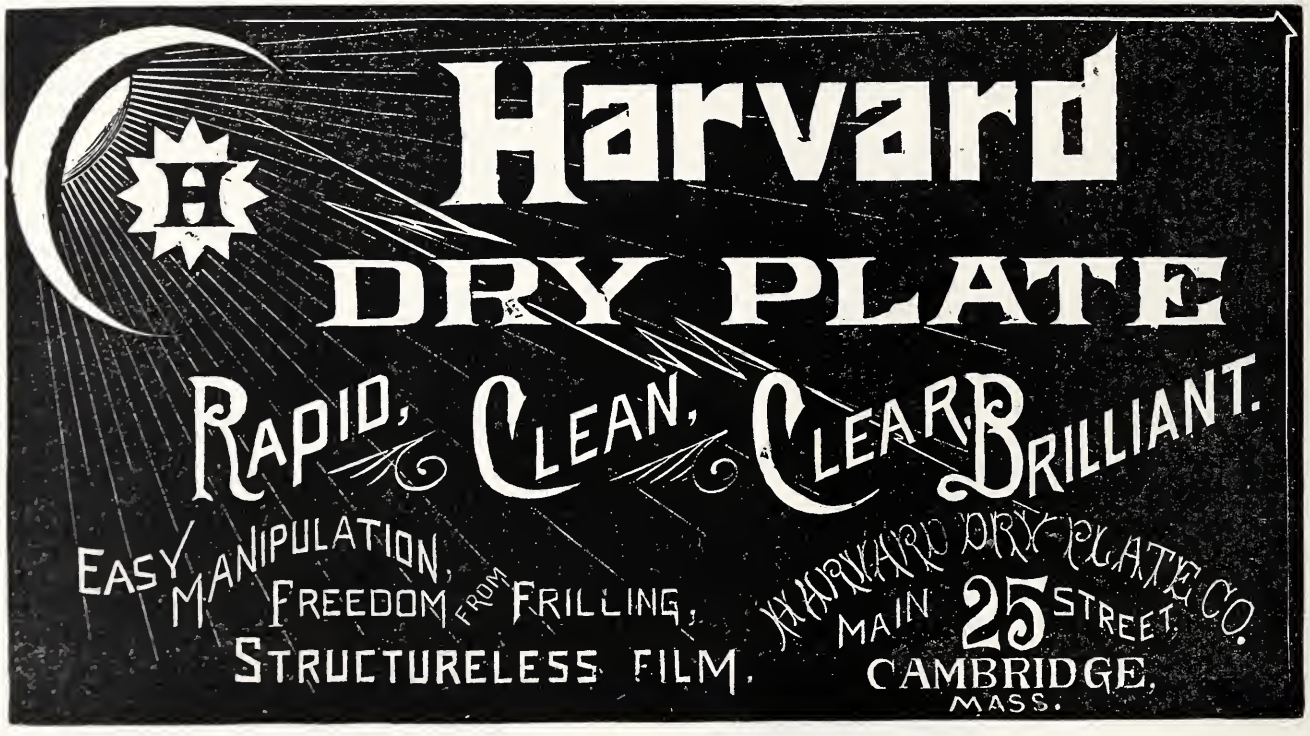
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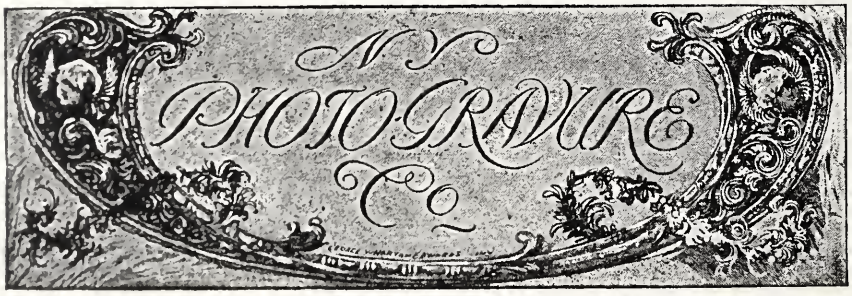
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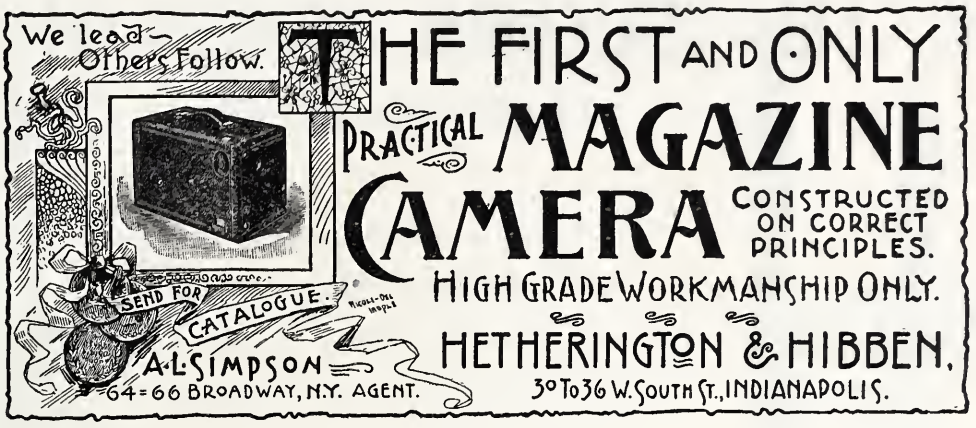
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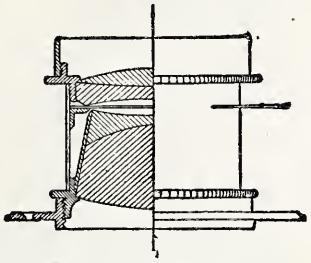


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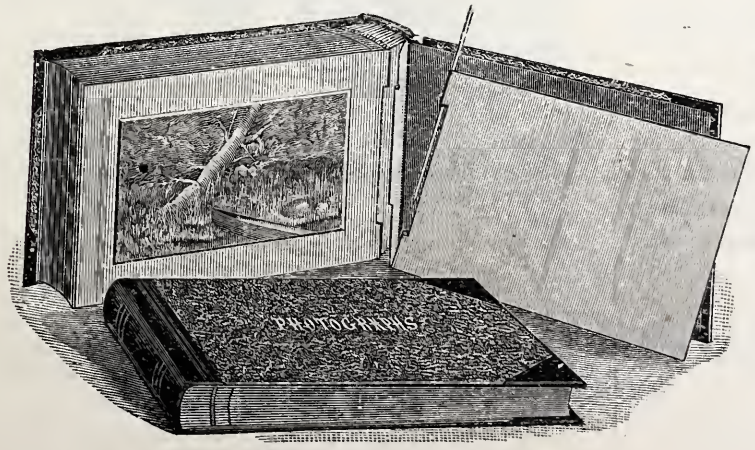
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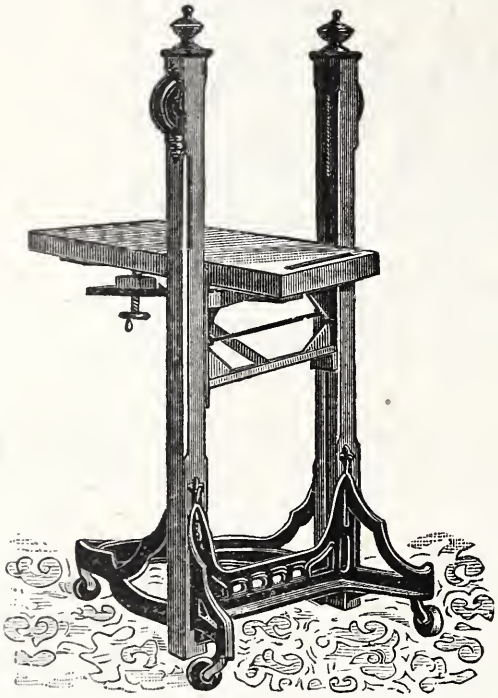
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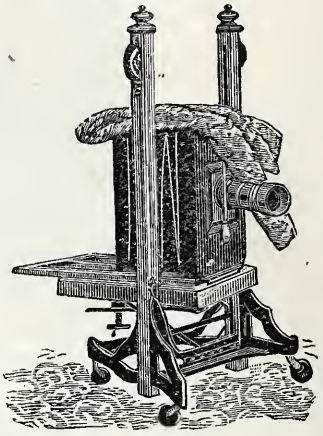
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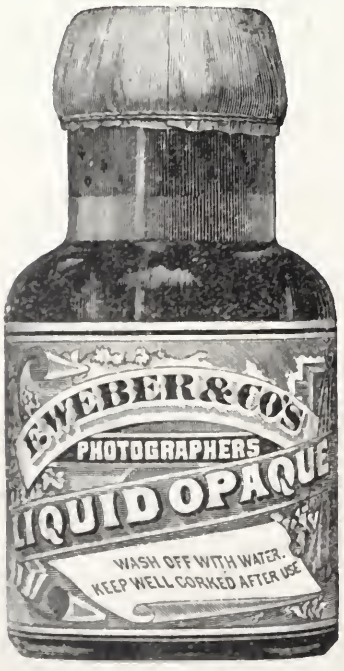
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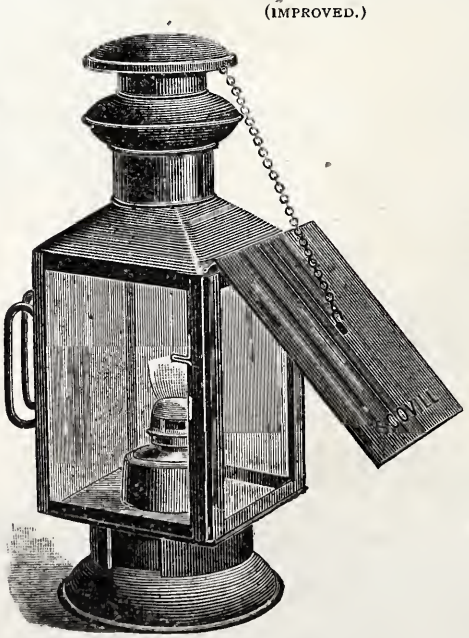
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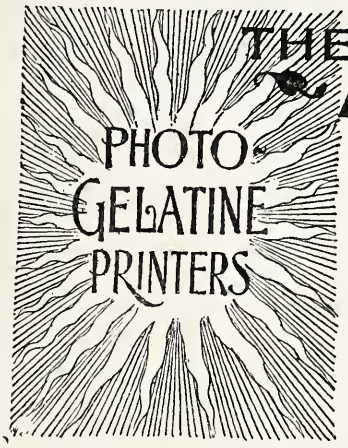
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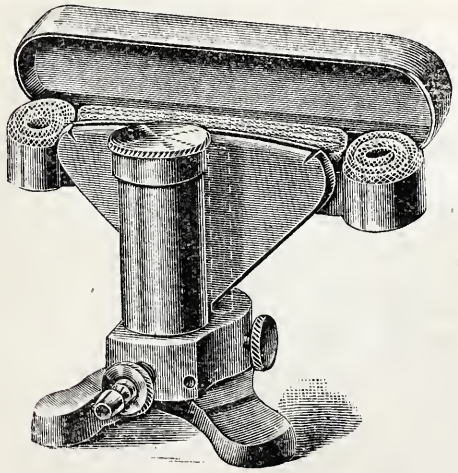
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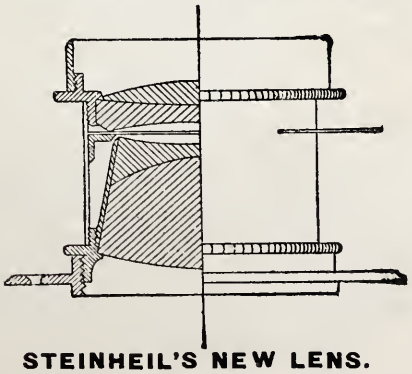
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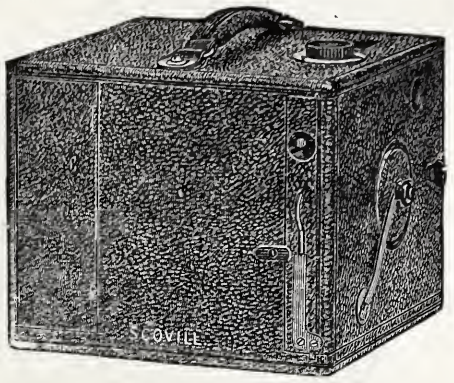
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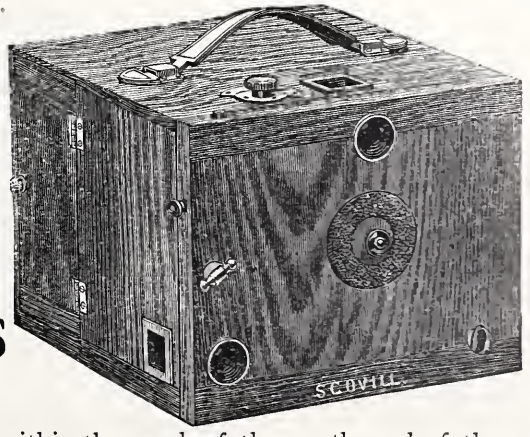
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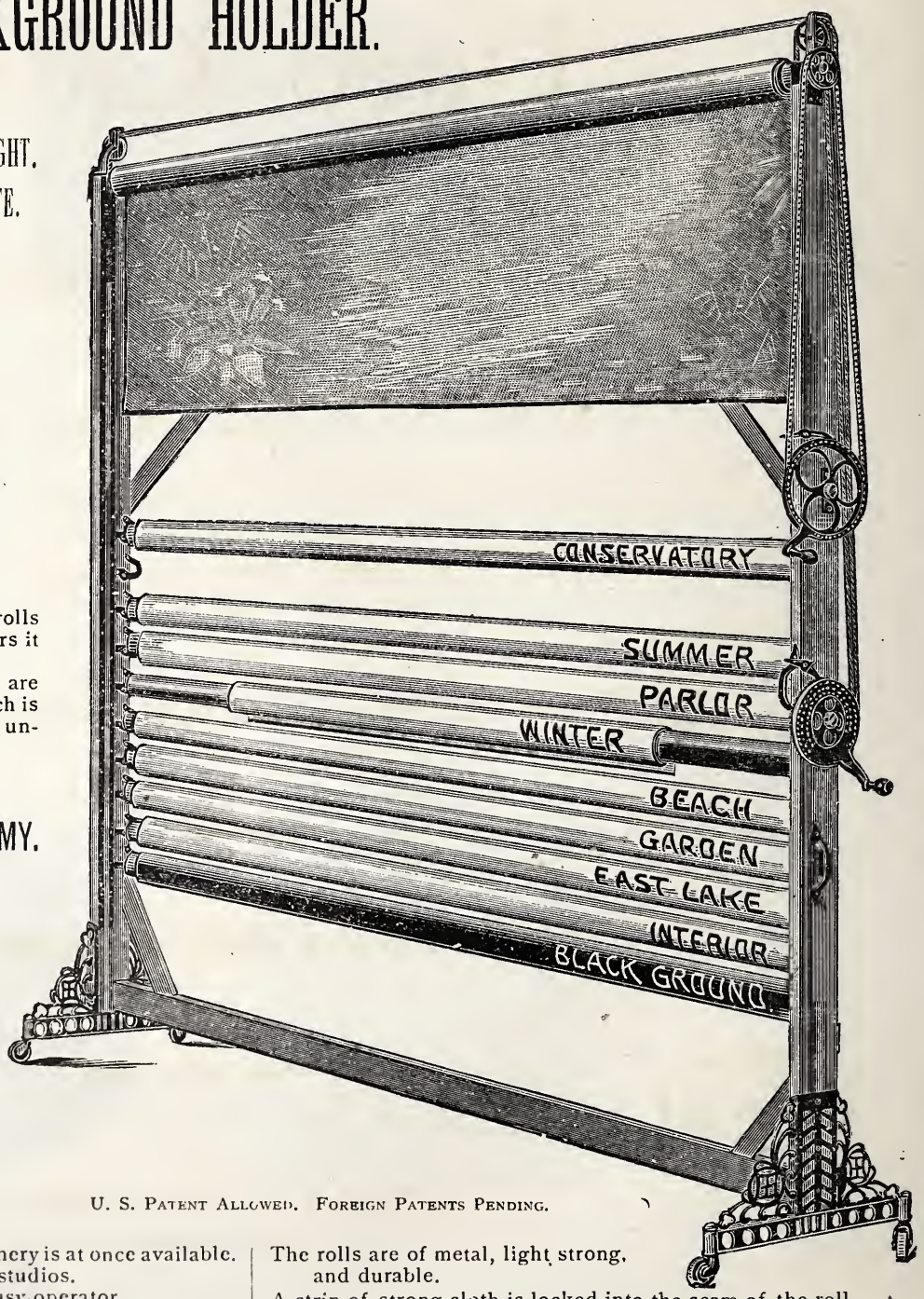
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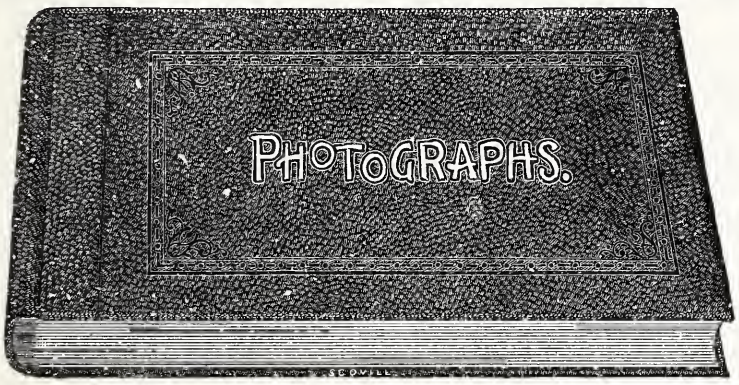
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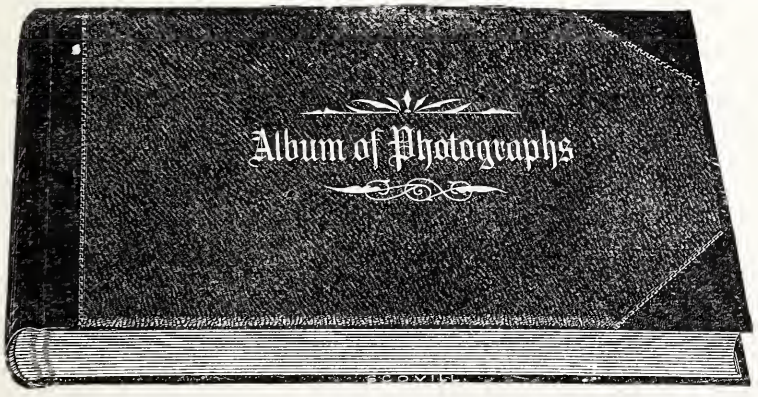
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PHOTOGRAPHIC TIMES.

VOL. XXII. FRIDAY, FEBRUARY 26, 1892. No. 545.

GENERAL GRANT.

THOSE of our readers who have taken advantage of the special offer made by our publishers, in connection with Grant's Memoirs and the *Cosmopolitan Magazine*, will especially appreciate the excellent portrait of General Grant, which adorns this number of THE PHOTOGRAPHIC TIMES. Both negative and phototype are by Mr. Gutekunst, of Philadelphia, who has made so many of our portrait illustrations.

We take great pleasure in presenting our readers with this excellent likeness of America's great General.

SLOW OR RAPID DEVELOPMENT?

THE controversy between the partisans of extra rapid development for plates which are underexposed (drop-shutter exposures) and those who advocate slow development is again at the order of the day. For ourselves the experience of a long practice leads us to develop the image, whether the exposure time be short or purposely lengthened, with a developer weak in pyrogallol and containing the usual proportion of alkali until we get all the details visible, and then proceeding with a strong, well-restrained developing compound to obtain intensity, and, consequently, the contrasts necessary, avoiding as far as possible to have recourse to intensification.

Aside of producing more perfect negatives and diapositives, slow development has also a capital advantage over rapid development: the silver layer is finer on account of the slowness with which the silver haloid is reduced. This is specially striking with acid developers in the wet collodion process, and when rapidly intensifying.

For this reason it is evident that microphotographs and diapositives, those intended for the magic lantern, should be obtained by slow development in order that the projection be free from granulations.

After a series of experiments which demonstrated to his satisfaction that in all cases of short exposure more details are obtained, and, which is not the least important, that the clichés are free from fog and the silver agglomerated into exceedingly fine molecules, as said above, by slow development, Mr. Meydenbendauer has adopted this manner of operating. He uses a developing solution compounded thus:

A.—Pyrogallol	7
Sodium sulphite	50
Distilled water	250
B.—Sodium carbonate	25
Water	250

DEVELOPING SOLUTION.

A	3
B	3
Water	150

Operating with such a diluted solution, the development proceeds very slow, two hours and more, according to the exposure time, being necessary to bring out the complete image; but the perfection of the results more than compensates the time so expended; moreover, it is not necessary to be constantly watching the development, nor from time to time agitating the developing solution, it being more advantageous to let it be undisturbed during the whole operation, or at least until all the details are well out.

Of course we advise the use of such exceedingly diluted developer only in the case of a very short exposure, *the allowable minimum*, or when the subject presents over-exaggerated contrasts of lights and shades, or of actinic and not actinic colors, that is, when developing orthochromatic plates. In other cases, which for obvious reasons are left to the judgment of the operator, a much less diluted solution should be employed to accelerate the development in order to obtain brilliancy, but always following the rule of allowing the details to be visible, no matter how little, before pushing to intensity.

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THE BOSTON ART MUSEUM EXHIBITION OF "PROCESSES."

IN noticing this exhibition, to which allusion was made in a previous issue, mention should be made, to start with, of the most excellent catalogue made by Mr. S. R. Koehler, whose thorough familiarity with the subject is therein shown, and we cannot do better than to quote from his "Introduction" concerning the purpose and method of the collection:

"The present exhibition is principally intended to give an idea of the stage of development reached by the marvelous processes for producing printable blocks and plates, known under the collective name of *The Photo-Mechanical Processes*, and to illustrate the means by which they attain their results, so far as that can be done within the limits imposed, and without divulging the many trade-secrets which still, either really or apparently, envelop many of them.

As these modern processes, however, cannot be understood without some knowledge of those that preceded them, it has been thought advisable to add illustrations also of those of the older processes of which specimens were obtainable. The exhibition offers, therefore, a succinct history of the means used to produce blocks and plates from which impressions can be made in a press or otherwise, from the fifteenth century, when these processes were first extensively practiced, down to our own time. Attentive study of the material submitted will show that the technical aim, steadily held in view, has been and is the substitution of the forces of nature for the activity of man. This aim is most clearly expressed in the announcement of the prize for a scientifically reliable reproductive process, offered by the Duc de Luynes in 1856. "It is," says this announcement, "with a view to hastening the moment, so much desired, when the processes of printing or of lithography shall permit the reproduction of the marvels of photography, without the intervention of the human hand in the design, that M. le Duc de Luynes.... has established a prize." This aim has not, indeed, been reached absolutely as yet, but considerable progress towards it has been made, as this exhibition testifies. Concerning the possibility of final achievement, the wisest course will be to abstain from all speculation, and to hold ourselves ready to accept such answer as the future may bring. Nor would it be permissible here to enter upon a discussion as to the effect which these new processes may have upon the older ones. It may be said, however, that the two differ very decidedly in their intellectual aims, however closely they may agree in the technical. The old processes, in their highest development, are artistic and give free scope to the personal element. The modern photo-mechanical processes, in *their* highest development, are scientific, and seek to eliminate the personal element. The former, therefore, are—or at least may be—themselves a form of art, while the latter are its servants, whose merit is measured by the degree to which they find it possible to repress their own individuality.

* * * * * * *

In examining the specimens, it must be born in mind that the purpose of the exhibition is distinctly *technical*, and that the illustration of technical points had to be made the first consideration, although the beauty of the results reached has also been kept in view wherever it was possible. Finally, it may be well to state that the exhibition does not nearly exhaust the subject with which it deals. The number of processes invented within the last thirty years is almost innumerable. It is believed, however, that most of the successful processes—successful, that is to say, either temporarily or permanently—are represented.

* * * * * * *

There are three possibilities in the production of blocks and plates to be used as printing forms in the press, according to which all printing processes are classified as: (1) *Relief processes;* (2) *intaglio processes;* (3) *planographic processes.*

The relief processes produce blocks, generally of wood, but occasionally also of other material, of which those parts which are to carry the printing ink are left standing in relief above the body of the material out of which they are made, while the parts which are to show white in the printed picture are cut away. If such a block is inked on the surface of the parts left standing, care being taken to keep the ink out of the hollows, or parts cut away, and a piece of paper or other suitable material is pressed against the block so inked, the result will be an impression. The printing process, in this case, is a *stamping process.*

The intaglio processes produce plates, generally of metal, but occasionally also of other material, in which the parts that are to carry the printing ink are intagliated (cut in), so that they form hollows, while those parts which are to show white in the printed picture are left standing. If such a plate is inked so as to fill the intagliated parts with the ink, and, after the surface has been carefully cleaned to remove all superfluous ink from it, a piece of paper or other suitable material is pressed against it, the result will again be an impression. But, instead of a stamping process, the printing operation is, in this case, an *embossing process.*

The planographic process (*planus*, plane, *graphein*, to write, to grave), finally, use printing surfaces that are, essentially at least, flat, The designs produced upon these surfaces accept the printing ink, whereas those parts which are to show white in the printed picture refuse it under the conditions utilized in the printing process. The production of the designs involves chemical action, and the printing process depends upon physical properties. It stands to reason that, if such a surface is inked under the proper conditions, and a piece of paper or other suitable material is pressed against it, the result, as in the two preceding cases, will be an impression. The materials used as printing surfaces in the older planographic processes are stone (*lithography*), or metal, commonly zinc (*zincography*). To these materials the photo-mechanical processes have added glutinous substances (*collographic processes*)."

Among the wood-cuts shown are examples from Dürer's "Little Passion," 1511, and a *fac-simile* of the "St. Christopher" of 1423. Modern wood-engraving is represented by the work of Baude, Closson, Juengling, Miller, T. Johnson, Kingsley, and others; etching, in the different manners, by Dürer, Behane, Rembrandt, Seymour Haden; mezzotint, by J. M. W. Turner and Earlom; lithog-

raphy by plates from Senefelder's original treatise, and color work by L. Prang & Co.

The substitute processes, that is, those attempting to reduce the manual labor of engraving, are represented with considerable fullness, and are especially interesting from the fact that they are not often seen nowadays. We notice the omission of any allusion to the "Anastatic" process for reproducing printed matter; and the catalogue mentions the lack of specimens of Dulos' mercury process, and others similar.

The 309 numbers in divisions A and B, thus hastily passed over, lead up to the "Photographic Processes," Division C. Prints from natural objects (leaves, laces, etc.) used as printing screens come first; then daguerreotypes, negatives on paper, waxed paper, glass and celluloid; collodion positives, as transfers to paper and porcelain; ambrotypes, ferrotypes, silver, gold, iron, uranium, platinum and carbon prints then follow in characteristic specimens; macro- and micro-photography, instantaneous, orthochromatic and colored photographs make up this Division (C) and prepare us for D, the photo-mechanical processes, regarding which we again quote Mr. Koehler:

"The demand for a process which can produce a multipliable picture without the intervention of either designer or engraver would seem to be met by photography, since from a negative made by the action of light a large number of positives, or "prints," can be obtained by the same means. Photography has, however, several limitations which circumscribe its usefulness. In the first place, most of its productions are not free from the suspicion of lack of permanency. In the second place, the operation of multiplying copies from a negative, in spite of all improvement, is still too slow and too costly, and the cost increases in the same ratio as the promise of permanency. Finally photographs must be mounted, which is a fatal objection to them as book illustrations, and still more unfits them for newspaper work. What is wanted is a process which, from any scene in nature, or stationary or rapidly moving object, or work of art of any kind, will produce a block or plate, printable in ordinary printer's ink, on an ordinary press, and at the same time absolutely reliable in the rendering of detail, of the general effect of light and shade, and of the relative value of the various colors involved. The photo-mechanical processes—so called because, although based on *photography*, their final products are a result of the press, which is a *mechanical* contrivance—represent the nearest approach to the realization of this ideal yet devised, even if they do not wholly reach it. Aside from the uniformity of texture from which all these processes suffer, the chief difficulty in the way is that they still rely too much on human skill and human judgment. This is due, partly to photography itself, which yields negatives of different degrees of perfection, and which, therefore, must be corrected, and partly to the operations which follow photography, such as etching—the success of which depends entirely on the skill and judgment of the etcher—and retouching by the hands of the engraver, which nearly all blocks and plates have to undergo before they are ready for the press. The process of the future—or at least the ideal process which is kept steadily in view, although it may never be reached—will do away with all these disturbing elements, and will be as strictly a scientific operation as a demonstration in chemistry. But even conceding these limitations, it must be acknowledged that the results obtained by the photo-mechanical processes are wonderful, and that, by the reproduction and dissemination of the works of nature as well as of art, they have become a powerful and beneficent factor in the intellectual life of our time.

The technical aim, then, of the processes under consideration is the production of blocks and plates which shall practically be precisely the same as the blocks and plates produced by the old hand processes illustrated in division A of this exhibition. That the aim has been reached is conclusively shown by the photo-mechanical process blocks and plates here brought together—a photo-mechanical relief-block, intaglio plate, or planographic printing surface, differs intrinsically, as far as fundamental technical principles are concerned, in nothing from the same kind of blocks, plates, and surfaces produced by hand. But to these latter the photo-mechanical processes have added several new varieties, which, although they may also be ranged under the different headings of relief, intaglio, and planographic surfaces, yet differ from the older processes in the nature of the printing forms used. These are: for relief blocks, the glue-type, made of hardened gelatine; for intaglio plates, the Woodburytype, the printing form for which consists of a metal plate with shallow cavities into which a solution of gelatine colored with a pigment is poured, instead of printing-ink; and for planographic printing, the collographic processes, which use printing surfaces of gelatine, so treated that they will take the ink in certain parts, while they will reject it in others. Most of these results are illustrated in the exhibition, and will be spoken of more in detail in their proper places.

The photo-mechanical processes at present in successful operation are almost wholly based upon the properties of certain resinous and glutinous substances, and the changes which they may be made to undergo under the influence of light. These substances are: asphaltum, albumen, and gelatine."

To go into detail would be practically to quote the entire text. We can only mention in passing some of the early photo-lithographic work of Osborn and Bradford, and a specially interesting series showing the production of blocks for newspaper work (No. 380).

Under the head of "Results" are shown a print made in 1864 from one of Niepce's plates, still existing in the museum at Chalons; early plates by Talbot, Pretsch, Poitevin and Albert; and examples of almost all the European and American processes that have been used or attempted, intaglio, lithographic, collographic, and relief; especially the use of this latter work for color printing, in which class the prints of Kurtz (708–711) show up finely; and two specimens (707) by Geo. L. Cowee of Boston are very dainty; but

nothing approaches in effectiveness the work of Goupil, and Boussod-Valadon & Co., of Paris, as shown in the "Chromotypogravures" in *Figaro Illustré* and other publications.

The last division deals with drawings for photo-mechanical process work, and has some interesting examples.

It is safe to say that no such opportunity has been before offered to those interested, for comparison of the best results of modern and former times; and we repeat our advice to all such, to avail themselves of it. If attendance in person is not possible they should not fail to secure a copy of the catalogue.

PHOTOGRAPHY ABROAD.

A NEW METHOD OF OBTAINING COUNTERTYPES.

IN a communication lately made to the *Société Française de Photographie*, Mr. A. Balagny describes a new method to obtain countertypes of which, in reason of its great importance, we give in the following lines an abridged but full description:

Whether the cliché be made on a glass plate or on a flexible transparent film, the manner of operating is exactly the same. Let us suppose that it is made on a transparent celluloid film.

It is immersed prepared side upwards into a solution of potassic bichromate at 3 per cent of water during five minutes, when it is laid face downwards on a glass plate and pressed with an india-rubber roller to squeeze out the bichromated liquid in excess. The back being sponged dry or nearly so, the film is detached from the glass plate and pinned with silvered drawing pins on a board lined with blotting paper, upon which it is allowed to dry in an horizontal position in the dark-room. If this operation is made in the evening, the film will be dry in the morning of the next day. It should be employed within forty-eight hours. It does not keep for a longer period.

For printing, the cliché should be bordered with strips of orange or black paper, as done in the carbon process, in order to avoid the edges of the gelatine to frill while developing the countertype.

The film placed on the negative, and, of course, pressed into perfect contact everywhere, must be printed in the shade, never by direct sunlight, until the image is visible in all its details, but not, however, deep brown by transparency. On its removal from the printing-frame, the film is immersed in water often renewed to eliminate the bichromate, which generally is done in about twenty minutes. It is then placed on a plate face upwards, sponged, and this done exposed to diffused light for a moment; half a second, one second at the most.

As it is seen, the theory of this process is quite simple; the bichromate renders the silver haloid (bromide or iodo-bromide, etc.) little sensitive to light; the bichromated gelatine by being impressed is made insoluble and impervious to water, which it repels, in the parts acted on, which form the image, and the latter, consisting of chromic oxide, after washing, more or less protects by its yellowish brown color the under-sensitive film from the luminous influence. Therefore, when the potassic bichromate is washed out and the film exposed, the light acts on the unprotected silver salt, and by developing in the manner described in the following lines one obtains a countertype.

To develop, Mr. Balagny recommends ferrous oxalate. It never produces fogging and allows one to operate by white light, that of a candle. If the countertype is developed by any other reagent, it will be veiled unless the development be conducted by the ordinary red light or that transmitted through a glass plate stained yellow on one side and deep green on the other.

Developing by white light is one of the novelties of the process, and a great boon, too.

The ferrous oxalate solution is prepared in the usual manner:

A.—Neutral potassic oxalate	30
Water	100
B.—Ferrous sulphate	30
Water	100
Sulphuric acid	a few drops

For use: 6 parts of A for 20 parts of B, to which one adds, but that is not exactly necessary, 3 to 5 parts of a potassic bromide solution at 10 per 100 of water.

After a thorough washing the image is fixed in a bath of potassic cyanide at 10 per cent. of water, washed with care, then immersed for about two hours in

Glycerine	4
Water	100

and finally sponged, allowed to dry, etc.

PHOTOZINCOGRAPHY.

Messrs. Auguste and Louis Lumière have devised a capital improvement on their photozincographic process, of which latter the reader will find the description in THE TIMES for December 11th, 1891, page 622.

The process as it now stands is simple and allows one to rapidly obtain a zincographic plate ready for printing.

A zinc plate is polished, then slightly etched by an immersion of two minutes in a diluted solution of nitric acid at 3 per 100 of water, then washed under the tap; then, after draining, coated by means of the tournette with the following solution, and finally dried by the aid of heat:

Gum arabic	10
Potassic bichromate	3
Water	100

The plate is exposed under a diapositive in lines for a period of from three to ten minutes in the shade, then etched by flowing upon it without a stop a solution of

Ferric chloride at 45 degrees Baumé	100
Cupric chloride	5

This mordant permeates the parts of the film of bichromated gum which are not acted on by light, and attacks the zinc, which blackens. As soon as the image is well delineated, which requires but a few seconds, the plate is rapidly rinsed, and, the gum being washed off by rubbing with a hard brush under the tap, the plate is sponged, dried, when it is ready for inking without any further preparation.

The novelty in this process is the use of cupric chloride, which forms on the zinc a deposit of pulverulent copper during the biting-in. This deposit separates the gum layer from the zinc and renders it lithographic on the parts acted on, that is to say, capable of quite easily taking hold of ink.

"This process," says Messrs. Lumière, "does not require the delicate *tours de main* necessary to succeed with the other similar methods. It gives proofs of a fineness which can rival with those obtained with bitumen by the most perfected processes."

The application of this process to half-tone images suggests itself: graining the plate, coating, exposing under a negative, etc.

Process to Restore its Developing Property to Blackened Eikonogen.

This process is due to Mr. A. Petry.

Dissolve either in the cold or by the aid of heat blackened eikonogen in the proportion of 20 grams for 500 cubic centimeters of ordinary water.

On the other hand prepare a solution of 50 grams of tartaric acid in 1 liter of water, and, of it, take 150 cubic centimeters, which should be little by little added to the cold eikonogen solution, care being taken to constantly agitate with a spatula.

The liquid, which primitively was dark-red, now gradually becomes red-grenat and rapidly thickens so as to have the appearance of a paste slightly tinged red. One pours it then on a filter: the water which drains off is of a red tint more or less deep, as the eikonogen was altered more or less. If a few cubic centimeters of the tartaric acid solution be added to this liquid, a new precipitate is formed which should be poured in the filter. After draining one washes several times the matter left on the filter with the remaining tartaric acid solution, and, when the liquid is well drained off, the filter with its contents is removed from the funnel and spread out on blotting-paper upon which the matter is allowed to dry in a well-aerated dark-room. Dry, it presents itself in fine rosy scales inalterable in the air, insoluble in water, but easily soluble in a cold solution of sodium sulphite.

Mr. Petry calls this product *oxygenated eikonogen*, and gives the following formala to prepare the developing solution:

Sodium sulphite	30
Oxygenated eikonogen	5
Sodium carbonate	50
Water	500

How to Transform a Gelatine Negative into a Positive by Reflection.

In the *Bulletin de la Société Photographique du Nord* we find a process entitled "Photographie sur Porcelain" which consists of converting a negative into a positive similar to ferrotypes by means of the mercuric bleaching process. The author, whose name is not given, states that by over-exposing he obtained a negative so weak even after mercuric intensification that it was an impossibility to obtain a good print from it. It was a picture of a young miss of sixteen, posed in a gracious attitude and pulling off one after another the leaves of a daisy to have an answer to the important question of "He loves me....a little....very much ....not at all!"

To save that charming picture the author thought to once more intensify the negative. "I made," says he, "a strong solution of mercury chloride. Immersed into it, the image became as white as milk, and, seeing the details coming out more and more, I finally found on the pellicle a splendid positive having a more delicate tone than any view on porcelain. I washed the plate for several hours and dried it without immersing it into the sodium hyposulphite bath, which would have blackened the image. Since more than a year I made it, I have not observed any trace of alteration." It is framed on a black velvet which gives value to the half tones and blacks.

This process much resembles the now forgotten

but beautiful alabastrine. The exposure should be purposely lengthened in order to obtain a weak negative with all the details; then after development, fixing, and a good thorough washing one proceeds as above explained.

It is obvious that this process is applicable to ferrotypes on gelatinized plates.

EDITORIAL NOTES.

IN the next issue of THE PHOTOGRAPHIC TIMES we shall print a characteristic article by H. P. Robinson of Tunbridge Wells, Eng.

"While a little different from the usual run of my articles," as Mr. Robinson writes of this, in an enclosing letter, it is, nevertheless, a characteristic article, and one which will be read with great profit by all classes of photographers. We expect to begin shortly a series of articles by this eminent photographer and photographic writer.

WE began last week a series of autobiographical sketches of eminent photographers, with an interesting sketch of J. F. Ryder, of Cincinnati, Ohio.

The portrait accompanying was an excellent likeness, as all who have the honor of Mr. Ryder's acquaintance will know. The frontispiece which embellished that number of the magazine was a fair specimen of the high-class work which is produced in the studio of the J. F. Ryder Co. It has already received high praise from several quarters.

Later we shall have similar sketches of other prominent photographers, including such men as F. W. Guerin, of St. Louis; James Landy, of Cincinnati; F. Gutekunst, of Philadelphia; Andrew Pringle, and other well-known foreigners, as well as some lady photographers and prominent amateurs.

THE OFFER OF GENERAL GRANT'S MEMOIRS in the $7 edition, for 70 cents, in connection with *The Cosmopolitan*, will only be continued for a few months longer. It is literally all that the advertisements have described it to be—in every way a very unusual offer. It is a book that belongs to the library of every household. It is needless to say that when the binding alone costs nearly as much as we ask for the two volumes containing over 1200 pages, it is not furnished at any profit to THE PHOTOGRAPHIC TIMES. The offer was made with the idea of doubling the circulation of THE TIMES, and that purpose has been almost accomplished. Within a limited time the price of the Memoirs will be increased from 70 cents to $2.

The popularity of these books is witnessed by the fact that Messrs. Webster & Co. paid more than $400,000 to the family of General Grant as their royalty upon sales made at the $7 price.

The terms of the offer are more fully stated on the advertising page.

PHOTOGRAPHY FOR BEGINNERS.

(*Continued from page* 82.)

APPARATUS.

The first requisite for making good photographs is a good camera. It need not be of complicated construction, highly polished, and correspondingly highly priced. Indeed, the simpler the camera the better, if it be perfectly light-tight and able to do the work which is required of it. We have seen how merely a darkened room, with a small hole at one end, served for a camera before photography was really discovered, and how such a camera made pictures, too, though not photographs.

Now, this dark room, or camera-obscura, greatly reduced in size, so as to be easily carried from place to place, and furnished with a lens for collecting the rays of light from the subject before it to be photographed, and thus throw the image of it on the glass plate within and at the opposite end of the box, is the model of our modern photographic camera, and contains all that is required to make good photographs.

Any one can make a camera if at all handy with tools, though it will probably cost more in the end and be not so good or so convenient in use as one which may be purchased for a few dollars.

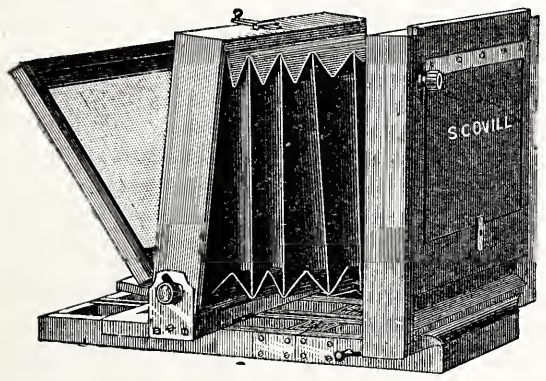
Cameras are very cheap now, good ones of fair size ranging in price from two dollars and a half to twenty-five dollars. Specially made and ornamental cameras of moderate dimensions sometimes cost as much as one hundred dollars; while, on the other hand, a complete photographic outfit, including a landscape lens, dry plates, developing and printing materials, may be bought for only two dollars and a half.

The best camera for general use is one which will make photographs four by five inches, or five by eight inches, in size, adjusted for use on a tripod, and which is of a pattern plain, and in construction strong.

We show a picture of a typical camera of this class, from which we can easily learn the use of those necessary parts which every good camera should have.

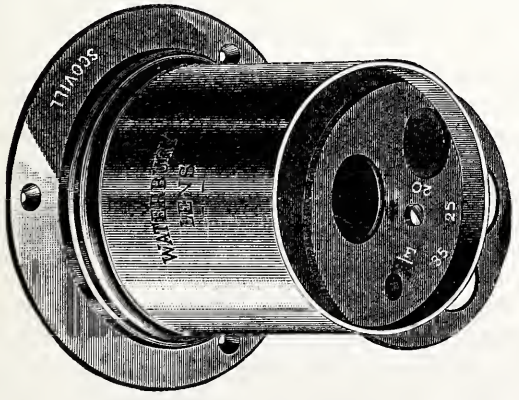
First of all, a camera should be as light and compact as is consistent with a fair amount of strength. It should be capable of reversing, so

that an upright picture may be made when the character of the subject requires it. In the one illustrated this is accomplished by turning the camera on end and securing it to the tripod by the screw, which also fits into a plate on the side. The front board which bears the lens should be capable of moving upward and downward, so that more or less of the sky or foreground may be taken in the picture by simply moving the lens upward or down-



ward. And then what is called a "swing back" is also a great convenience, as it enables the photographer to point his camera upward or downward in order to take in a high building or the ground very near his feet.

The front part of the camera which bears the lens is connected with the back part which holds the plate by means of an elastic bellows, so that a "sharp" focus—by which is meant a clearness of the image on the ground glass—may be obtained by moving the plate nearer to or farther from the



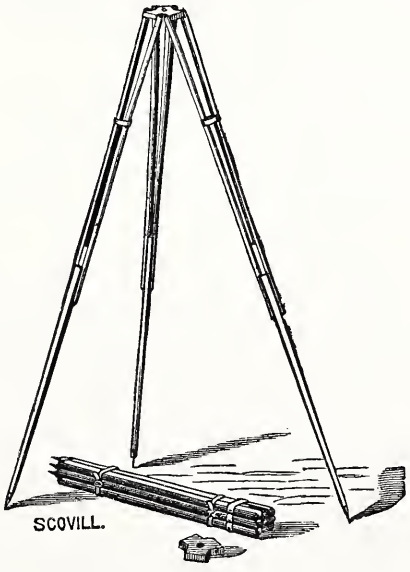
lens. Just how to focus, however, we shall learn next week when we go into the fields with our camera.

The lens is a very important instrument, as it forms the image of the picture to be photographed on the sensitive plate. It should be selected with the utmost care, and if only a moderate amount of money can be spent on the outfit, I should advise economizing on the camera rather than on the lens. They are many kinds of lenses, and they vary in price from three dollars and a half to fifty, or even seventy-five dollars, for the size of cameras we have been considering. A good "single view" lens, as it is called, costs only four dollars and a half, and is perfectly capable of making the best landscape pho-



tographs, as wells as groups of one's friends, and portraits; but it will not make instantaneous pictures unless the light is very strong and the plate used is very sensitive; and it cannot make photographs of interiors, as the picture of one's room or the inside of a church.

For interior work a wide-angle lens must be used; and for instantaneous photographs one which is called a "rapid rectilinear" lens, which means that it is very quick working, and makes an image with perfectly straight lines, as the original subject appears in nature. Such lenses of domestic make, which are now in every way the equal of the best imported lenses, cost from twenty-five to seventy-



five dollars. The Morrison is best for wide-angle purposes; and the Steinheil, the Gundlach, or the Swift are excellent lenses for instantaneous work and portraiture.

The other necessary piece of apparatus is the tripod, a picture of which is also shown. It should be light but strong, and capable of being lengthened or shortened so as to overcome unevenness of the ground, as the camera must always stand perfectly level.

A tripod does not cost very much, the very best

being priced at three dollars and a half. It is easily put together and taken apart, and does not require any special description at this time.

There are many other things which go to make up a complete photographic outfit, but just now we need not regard them. We have examined the essential parts of a working equipment, and are prepared to go into the field and begin photographing. When we are actually engaged in the work of photographing we shall learn more about the outfit and how it should be used.

(*To be continued.*)

THE CHEMISTRY OF PHOTOGRAPHY.

(*Continued from page* 96.)

CHAPTER III.—*Continued.*

The Latent Image as a "Lake"—Carey Lea's "Photo Salts."—The distinguished American photo chemist, M. Carey Lea, was born at Philadelphia in 1823. English readers made his acquaintance in 1864, when he commenced to act as correspondent for the *British Journal of Photography*, and his name has ever since been a "household word" among those who have studied photography mainly for the many captivating problems which it offers in chemistry and in physics.

Of all Mr. Lea's researches none equal in interest and importance the series upon the "photo salts of silver," and upon "allotropic silver," which appeared during the years 1887–91 in the *American Journal of Science.*

In the opening paper of the series it is declared that the object is to show: "(1) That chlorine, bromine, and iodine are capable of forming compounds with silver exhibiting varied and beautiful coloration, pearl-blossom, rose, purple, and black. That these compounds (except under the influence of light) possess great stability; that they may be obtained by purely chemical means, and in the entire absence of light.

"(2) That of these substances the red chloride shows a tendency to the reproduction of colors.

"(3) That these substances, formed by purely chemical means, constitute the actual material of the latent or invisible photographic image; which material may now be obtained in the laboratory without the aid of light and in any desired quantity. They also form part of the visible product resulting from the action of light on the silver haloids."

According to this theory, when light acts upon an ordinary gelatine dry-plate, some of the silver bromide (AgBr) is reduced to the state of sub-bromide (Ag_2Br), but it is only possible for the light to form a small quantity of the sub-bromide. The sub-bromide then enters into a molecular combination with the unaltered silver bromide, to form a purplish compound of a nature similar to what is called a "lake." Such a compound of silver sub-bromide and silver bromide Lea calls a "photo-bromide." Similarly, we get a "photo-chloride" and a "photo-iodide," when silver chloride and silver iodide are respectively exposed to light. Collectively, they may be termed "photo-salts," as being capable of production by the action of light. Such compounds—unlike the normal sub-salts—are not attacked by strong cold nitric acid.

With silver chloride Lea found that it was not possible to convert more than about 8 per cent. of the material into the sub-chloride. The black photo-chloride is easily obtained by treating reduced silver with two or three applications of sodium hypochlorite.

The identity of the photo-salts with the material which composes the latent image is shown by the following facts: 1st, in the entire absence of light, sodium hypophosphite is able to affect a sensitive film of silver haloid in the same way as does light, *producing a result equivalent to a latent image formed by light*, and capable of development in the same way as an actual impression of light.

2d. That these two effects, the impression produced by hypophosphite and that by light, comport themselves to reagents in exactly the same way, and seem every way identical.

3d. That the image produced by the action of the hypophosphite on silver chloride always gives rise to a positive on development; but on silver bromide may give rise to either a direct or a reversed image, *both of these effects corresponding exactly with those of light.* More than this, sodium hypophosphite may be made to reverse the image produced by *light* on silver bromide; and conversely light may be made to reverse the action of *hypophosphite.* So exact a correspondence in these remarkable properties can scarcely be fortuitous.

It is an interesting experiment to damp the surface of a wood printing block with sodium hypophosphite. Then in the dark-room place the block in contact with the surface of a gelatine dry-plate. On development in the ordinary way, the plate gives the picture which was carved upon the block. Alkaline solutions of milk sugar or of grape sugar, or a solution of ferrous hydrate produce the same effect as sodium hypophosphite. The "photo-products" (this term seems better than "photo-salts," as the latter would infer that the bodies in question have a definite chemical composition) so formed are

affected similarly to the latent image ; being destroyed by potassium bichromate, and decomposed by sodium hyposulphite and by ammonia.

It is to be noted that nitric acid, which attacks either silver alone, or silver chloride alone, or silver sub-chloride alone, has no effect upon the mixture (or rather molecular combination) of these substances which is produced by the action of light upon silver chloride. Lea writes :—"The principal action of light on AgCl (precipitated in presence of excess of hydrochloric acid) consists in the formation of a small quantity of sub-chloride, which enters into combination with the white silver chloride not acted upon, forming the photo-chloride, and thus is able to withstand the action of strong nitric acid. At the same time a trace is formed, either of metallic silver or of uncombined sub-chloride, it is impossible to say which. After a certain very moderate quantity of photo-chloride is formed, the action of light seems to cease.

"The nature of the product formed by the continued action of light on silver chloride seems to support the conclusion that the sub-chloride is combined with the whole of the normal chloride after the manner of *lakes* rather than in equivalent proportions."

The term "lake" is applied in commerce to certain colored compounds which consist of organic coloring matters precipitated in the presence of alumina. No definite chemical compound is formed, but the two substances hold so firmly together that they cannot be separated by repeated or long-continued washing. Probably some kind of molecular combination takes place.

Summing up Carey Lea's theory of the latent or photographic image we note that, according to him, it consists neither of the normal silver haloid physically modified, nor of a sub-salt ; but of a combination of normal salt and sub-salt. That the sub-salt loses in this way its weak resistance to reagents, and acquires stability, thus corresponding to the great stability of the latent image, which, though a reduction product, shows considerable resistance to even so powerful an oxidizer as nitric acid.

The Latent Image Consists of Allotropic Silver Bromide—Leaper, 1891.—We have quoted in tabular form the different varieties of silver bromide, as classified by De Pitteurs. Commencing with the variety of AgBr which transmits orange light, we find that by the addition of energy in the form of heat we can steadily increase the sensitiveness of the silver bromide to light, until at last we arrive at a form of AgBr which transmits blue rays, and which is itself exquisitely sensitive to light.

By *continuing* to heat the emulsion after having reached this point, we obtain a form of AgBr which is sensitive to *red* light, and which is at once decomposed by a developer, without having been exposed to light at all, the plate being—as we say—"fogged all over."

Leaper argues* that the effect of energy in the form of *light* is similar to its effect in the form of heat. By light, the seventh allotropic form of AgBr shown in De Pitteur's table on is converted into the eighth and last modification shown in the same table. The former is not affected by our developers, the latter is ; an image can therefore be developed upon such a plate.

TABLE OF THE CHEMICAL THEORIES OF THE LATENT IMAGE.

I.—The Latent Image consists of Metallic Silver	Scheele, 1777. Guthrie, 1857, etc.
II.—The Latent Image an Oxy-Haloid Salt of Silver....	Hunt, 1854. Hodgkinson, 1887.
III.—The Latent Image a "Sub-Salt" of Silver.....	Vogel. Abney.
IV.—The Latent Image a "Lake.".....	Carey Lea, 1887.
V.—The Latent Image composed of Allotropic Silver Haloid	Leaper, 1891.

W. Jerome Harrison.

(*To be continued.*)

Notes and News.

C. L. Moore, of Springfield, Mass., has sold out his photographic business.

Thomas L. Parker, of Cleveland, Ohio, recently sustained a loss of photographic material by fire.

E. M. Allen, Bradford, Vt., writes under date of February 15th, that he has completely recovered from the fire which burned him out last September, having rebuilt his gallery and stocked it with entirely new apparatus.

Mr. and Mrs. W. P. Buchanan celebrated their third wedding anniversary Tuesday evening, March 1st, at their residence on North 13th Street.

It was a leather and novelty wedding. Progressive euchre was the feature of the evening. It was a most enjoyable occasion for all.

Tuesday evening, February 23d, the Photographic Society of Philadelphia held an exhibition of lantern-slides in Association Hall, representing the work of its members.

* *British Journal of Photography*, 1891, p. 231.

A Lady Dealer.—We note the following letter in a Western contemporary:

CINCINNATI, January 16th, 1892.

The undersigned hereby gives notice that she has bought the stock of goods, fixtures, accounts, claims and demands of every description of the firm of P. Smith & Co., at No. 248 Race Street, this city, and that the business will be continued by her at the same place.

D. K. Cady will act as my Manager, and no change in the firm name will be made.

Respectfully, MARY ELLEN CADY.

The Washington Camera Club.—At the annual election of officers of the club the following gentlemen were elected: W. St. George Abbott, M.D., re-elected President; Robert Reyburn, M.D., Vice-President; W. B. Waite, Secretary; Miss Frances B. Johnson, Corresponding Secretary. The committee reported that arrangements were being made for the erection of suitable quarters for the use of the club on Connecticut avenue, where full club facilities will be given to members.

The Queens County Camera Club was organized at a meeting of the amateur photographers of that section, held on the 12th inst. The officers elected were: Thomas Cusack, President; Professor F. Schonberg, Vice-President; John Connery, Secretary; Newland Van Riper; Treasurer; John Clark, Librarian; Edward Gidman, Chairman of Committees. The location of the club's headquarters was discussed and the prevailing feeling was in favor of securing a suitable hall fitted up as a place of meeting, with a work-room lighted from the top and a dark-room attached. The officers were requested to investigate and report at next meeting, which will be held at its temporary quarters, 192 12th street, Long Island City.

At an Exhibition of Lantern-Slides, held at the rooms of the Society of Amateur Photographers of New York, in West 38th Street, on Friday evening, February 12th, were shown a selection from the work done by William B. Post, Esq., during a three months' sojourn in Japan in the summer of 189 . The exhibition included views taken in Yokohama, Tokio, Kyoto, Shiznoka, Kobe, and Osaka. Also scenes in Gifu and Nagoya, where the recent earthquakes occurred. There were portraits of the "mousmes" and other natives, and pictures of farm and city life in the great island of Nippon.

Messrs. Horgan & Robey, the well-known photographic merchants, of Boston, called upon us while in New York the other day. They have been making an extended tour together. They contemplate establishing a branch office in Chicago. Should they do so, they certainly would make it interesting for the other dealers there.

The Photographical Section of the American Institute celebrated its annual dinner at Clark's, Thursday evening, February 18th. Among those present were Henry J. Newton, Oscar Mason, Cornelius Van Brunt, Dr. A. H. Elliott, Col. V. M. Wilcox, Dr. Wilcox, W. Irving Adams, Prof. Charles Ehrmann, and C. T. Roche. After the dinner there were several informal addresses.

Photographs of the Recent Total Eclipse of the Moon.—In the *Comptes Rendus* for November 23d, M. G. Rayet gives the results of observations made at Bordeaux of the total lunar eclipse, which occurred on November 15, 1891. In spite of unfavorable atmospheric conditions it was found possible during totality to photograph a considerable portion of the Moon's disc with an exposure of about two minutes The instrument employed was the photographic equatorial of 33 centimeters aperture. In his remarks on M. Rayet's communication, M. Janssen suggests that a measure of the photographic value of the light from the totally eclipsed Moon might be obtained by finding the time required to give, on a portion of the plate used in photographing the eclipse, an image of the full Moon of the same intensity. The ratio of the times of exposure would give the inverse ratio of the photographic intensities. As the light reflected from the Moon during eclipse must pass through a great depth of the earth's atmosphere M. Janssen hoped to observe the faint oxygen absorption bands in the green and blue regions of its spectrum, but observations at Meudon were unfortunately prevented by bad weather.

HERR SCHUMANN'S DISCOVERIES IN THE ULTRA-VIOLET HYDROGEN SPECTRUM.

IN a letter dated December 10, 1891, Herr Schumann sends a most interesting account of his recent important discoveries in the extreme ultra-violet. During a visit to his laboratory in Leipzig last summer we were greatly struck by the extreme neatness and attention to detail there apparent. Under a microscope the photographs of gaseous and metallic spectra showed a sharpness of definition which has probably never been equaled in work of a similar degree of difficulty. For his extensive investigations of the hydrogen spectrum Herr Schumann has not less than one hundred tubes, most of them fitted with quartz stoppers for end-on illumination, and his collection of quartz and fluor spar prisms and lenses is remarkably large.

In no region of the spectrum does the investigator encounter such great difficulties as in the extreme ultra-violet, for not only do these short waves exercise but little effect upon the most carefully prepared photographic plates, but in addition they are completely absorbed by a layer of air of only a few feet in thickness. For this reason, in passing beyond λ 1800, Herr Schumann finds it necessary to use his spectrograph in a vacuum. After working an entire year he has succeeded in preparing photographic plates by a new formula, which possess an extraordinary degree of sensitiveness. They also have the peculiar property of becoming more sensitive the longer they are kept, without being subject to any of the defects which ordinary bromide of silver plates acquire under the same conditions.

A few weeks preceding the date of his letter, working with his new plates on the spectrum of hydrogen, Herr Schumann succeeded in photographing several centimeters beyond the most advanced ultra-violet boundary line then known. In the most refrangible part of this

extremely feeble region, but one plate was sufficiently sensitive to show any trace of action. All other plates, though made by the same formula, were not acted upon in the least, even after very long exposure. With the highly improved apparatus then used the attempt was made to resolve the group of hydrogen lines beyond λ 1820 discovered by the same investigator in the preceding year. The results greatly surpassed his expectations, for the group was not only perfectly resolved, but found to contain many more lines than had been supposed from the photographs of 1890. Beyond λ 1820 fourteen clearly defined groups were found, all of them containing a remarkably large number of lines. The first group, which is only 11 millimeters long on the plate, and was made with a slit 0.004 millimeter wide, contains over 90 well-defined lines. The other groups are hardly so rich in lines, but altogether contain about 600. It is thus evident that the radiation of incandescent hydrogen in the hitherto unknown region beyond λ 1820 is surprisingly great.

It is unfortunate that the nature of the apparatus, supplied as it is with fluor-spar prisms and used in a vacuum, will not allow the wave-lengths of the most refrangible lines reached to be determined. For this purpose it is hoped that a Rowland concave grating, which is very brilliant in certain spectra, may be used. With this grating the aluminium lines at λ 1860 and λ 1852 have been photographed through a layer of air two metres thick in 45 minutes, a primary current of only seven amperes being employed, while the plates were prepared after the new formula. It has been found impossible with any other plates to photograph these lines through an equal thickness of air, though with the grating this may be accomplished with ordinary silver bromide plates. The remark is made, in passing, that the line at λ 1929, assigned by Cornu to aluminium, belongs in fact to silicon, as has been found by extensive investigation.

A further peculiarity is recorded in the fact that the lines λ 1860 and λ 1852 show a different relative intensity, according as the grating or prisms, whether quartz or fluor spar, are used. The grating gives the more refrangible line of much less intensity than the other, while with prisms the lines are equal in intensity. As yet a lack of time has prevented an investigation of the cause of this difference. It may be due to atmospheric absorption, but it is also possible that the speculum metal may absorb the short waves more strongly than the long. The general absorption of the speculum metal may change at this point into a selective absorption, such that the more refrangible line would be much weakened.

In the construction of the new spectrograph the camera will be so arranged that it can be set at any desired angle to the optical axis of the lens. In the present instrument the camera is fixed at a constant angle of 26 deg., which is suitable for the region between λ 1860 and λ 1820. For waves shorter than these, the angle must be very much smaller in order to secure the best definition.

"Harrison's 'Chemistry of Photography' seems to have taken a new start in THE PHOTOGRAPHIC TIMES. His writings are very interesting and clear to understand. I study them diligently."—CHAUTAUQUA STUDENT No. 461.

The Editorial Table.

We have received a copy of "The Optics of Photography and Photographic Lenses," by J. Traill Taylor, from Messrs. E. & H. T. Anthony & Co.; but having reviewed this excellent book in a preceding issue of THE PHOTOGRAPHIC TIMES, we have nothing further to say about it.

A work on the great earthquake of Japan, by Professor John Milne and Professor W. K. Burton, is now in the press at Tokio. It will be illustrated by 25 large photo-plates. For the sake of comparison, there will be two plates, showing on a small scale the effects of earthquake in Italy and other countries. All the plates are to be on the finest quality of Japanese paper.

We have received from Leigh, the well-known photographer, of Beaver Falls, a very pretty child picture, entitled "Show me Chile." It represents a little boy dressed in regimentals and with a drawn sword. The expression on the child's face is especially appropriate to the subject.

Mr. George Wolf Holstein, of Albany, Texas, sends us a blue print of a scene called "Texas Springs."

The picture deserves much praise from an artistic point of view.

Technically speaking the negative is harsh from over-development, the blue print is of feeble color, and would probably be much better were it printed upon paper with smoother surface.

Mr. J. L. Clinton, of Colorado Springs, Colorado, has sent us two 5 x 8, colored in aquarell, scenes in the Rocky Mountains.

One, "Pike's Peak from Briarhurst," is quite an attractive picture, the foliage printed in rather too brilliant tone, but otherwise is very good.

The other is a view of Rocks in the Garden of the Gods. The bright red color of the massive rocks appeared to us unnatural, but parties who have been there tell us the tone is not at all exaggerated, and in reality as represented.

The two pictures are very cleverly done.

Mr. M. W. Keller, of Glencoe, Mo., has sent us three 5 x 8's, printed on aristo paper. No. 1, a view in Meramee Park, near St. Louis, is from an excellent negative, light and shadow effects very artistic, and details brought out wonderful perfection. But the print is very poor; it is of nasty, dirty color, with whites decidedly yellow.

No. 2, "Fort Curious," is not quite as good, but will do. It is toned better than the other.

No. 3, "Take my picture, papa," is the best print, as sharp as the circumstances permit, but owing to the background being entirely out of focus, the snow and sun patches, the picture presents a very inharmonious appearance. Were we to cut it down to 4 x 5, much of the faults being removed thereby, the effect would certainly be better.

If our correspondent cannot produce better tones on

aristo, why not try the omega paper, and what may possibly be still better, return to the orthodox three crown albumen paper, sensitized and toned according to the formula of the manufacturers.

We have received a bound copy of *Anthony's Photographic Bulletin* for 1891, which will make a valued addition to our photographic library.

Our Little Men and Women for March is an unusually readable number. "Boots and Boneset" is a capital story; "Playing School" tells more about "The Doings of the Studio Dolls," and "Like a Fairy Princess" is a true incident, told as a charming story, about the Princess of Wales. "A Seal's Sayings," "A Boy and a Girl," "Joker and His Relations," are all worthy of special mention, while "Mamma Trusted Us," "Five Little Servants," and "A Star Story," each embellished with fitting and beautiful pictures, show a knowledge and appreciation of child-life which enable the publishers of *Our Little Men and Women* to send out an exceedingly helpful as well as beautiful little magazine.

For youngest readers. Price, $1 a year; 10 cents a number. D. Lothrop Company, Publishers, Boston.

The Pansy.—The March *Pansy* opens with "A Happy Little Girl," which, upon examining the entire contents, we find suggestive of many other happy girls and boys who will read this admirable number. The stories by Pansy and Margaret Sidney move along in that masterly fashion which marks the writings of these authors, and its shorter stories, articles, sketches and verse, well sustain the opinion always expressed whenever *The Pansy* magazine is spoken of.

Price $1 a year; 10 cents a number. D. Lothrop Company, Publishers, Boston.

"Babyland."—The March *Babyland* is a picture, a story and a song, all in one. The dainty frontispiece of Mother, and Baby in the new cradle, "The Tiptoe Twins," "The Neighbor Babies," "Sweetheart in her Day Night-Dress," "The Nursery Blacksmith," and the illustrated "Mouse Story," with other pretty pictures and merry jingles, will captivate Baby and receive heartier praise than ever from Mamma. Price, 50 cents a year; 5 cents a number. D. Lothrop Company, Publishers, Boston.

"The Photographic Image," by P. C. Duchochois, is one of the most valuable little books for the professional and the amateur that has been published in a long time. Certainly no one is more competent to write upon the subject than Mr. Duchochois, and he has given us clearly without waste of words, the results of his study and experience.—*The Photo-American.*

"I think the 'Annual' better than ever, if that is possible."—A. R. DRESSER, Springfield Eng.

Queries and Answers.

220 H. N.—(1) Which do you consider the more difficult to make, collodion printing paper, or gelatine dry-plates? (2) Is the name aristotype patented? (3) Has any one the right to make and sell the same? (4) Where can I procure material for this paper, and also for collotype or phototype work?

220 *Answer.*—(1) One is about as difficult to make as the other, and manufacturers should pay much attention to either of them. (2) It is not, so far as we know. (4) Apply to Scovill & Adams Co, 423 Broome Street, New York.

221 ED. S. DRAKE writes: By some unknown freak an operator working with me goes to work and spoils a silver bath by first putting in bicarbonate soda (to clean the bath, as he says). He puts in fully 4 ounces. Next he puts in a small quantity of powdered alum, as he says, to neutralize the soda; next he fuses it, but, of course, the moment he put the paper on it, it took the albumen from the paper as quick as it touched it; next he purchased 2 ounces nitric acid, adds to the bath, fuses it again, result the same as very weak bath; it prints mealy. Next he puts in a little of carbonate soda crystals and a little *sulphuric* acid. Can you tell me if there is anything I can do with bath to pull it through; it *was* a 50-grain bath, of a gallon, and, as you may know, I don't feel like losing it. A word through your colums would be thankfully received.

221 *Answer.*—We do not often hear of a more irrational or nonsensical method to attempt rectification of a silver bath than the one adopted by your young man. The amount of alkali added to the silver solution has transformed the largest, if not the whole amount of nitrate of silver into carbonate of silver in the form of a yellowish-white precipitate. Presuming the bath was filtered after precipitation and before alum was added, there remained but a very small amount of silver in solution at the best. Fusing cannot possibly be of effect ascribed to that operation, because the main substance present was alum. That all the silver had been taken from the solution, or the greatest portion of it, is proved by the albumen film dissolving as soon as brought in contact with it. Nitric acid, carbonate of soda, sulphuric acid subsequently added, increased the concentration of the solution and indicated a higher hydrometric degree without, however, adding to the strength or printing qualities of the bath. Of the 17½ ounces of nitrate of silver originally in a gallon of the solution, there can be but little left—not enough to make it pay to bother with any longer.

To rectify a silver bath boil it for about a half hour, filter over kaoline, reduce to the original strength, neutralize properly, and filter.

Or, add to a gallon of the bath ½ ounce aqua ammonia and expose to the sun for a day or so. When the precipitate has settled add of a 10 per cent. solution of permanganate of potassium about a ½ ounce; shake up, sun, and continue to do so until a slight pinkish color remains. Add silver enough to bring up to the required strength, acidify slightly, then add sufficient carbonate of soda to make the bath neutral.

To keep the bath neutral retain always a small quantity of carbonate of silver in your stock bottle.

CHAUTAUQUA SUPPLEMENT

TO THE

Photographic Times.

CONDUCTED BY PROFESSOR CHARLES EHRMANN.

FEBRUARY, 1892.

MR. M. A. MARTIN, the Secretary of the C. L. S. C., visited our laboratory when on his way to the Bermuda Islands, where he intends to spend winter and spring for the restoration of his health. His little son, "Percy," a great pet of our students, accompanies him, and as they both are well provided with cameras, Carbutt's orthochromatic plates and films, we may justly expect to see next summer some beautiful photographs taken during the trip, as developing of exposures made will be postponed till the practicing class on the Assembly Grounds is open.

NOTICES TO STUDENTS.

Several of the examination papers of students in class 1891–92 have been returned answered. We are pleased to notice these candidates for a Chautauqua diploma show so far more than average good knowledge of the theories of photography. Those not quite as well posted as they are expected to be should not hesitate to compete. Apply to the instructor in all cases of doubt; he will cheerfully assist you in finding in the prescribed readings correct answers to difficult questions.

Collections of students' work to be exhibited next summer are beginning to come in, and whatever we have received is of fine quality and reflects much credit upon the respective senders.

Let us all combine to make the Chautauqua photographic exhibition of 1892 worthy of its name.

Lantern-slides we hope will be there in large number.

THE EXCHANGE CLUB.

On account of the ever-increasing numbers of members of the Club, and the consequent printing of a large edition, quite impossible to do in some instances, and thus debarring many from the benefits offered by the Club, the following amendment to the constitution, properly seconded, has been offered by one of our most efficient co-operators:

"Instead of exchanging pictures among all the members of the Club, as heretofore practiced, be it resolved,

"At the days set forth, members will present but three copies of one print to the Secretary. These prints to be arranged in portfolios, and to circulate in different sections of the country among members residing therein.

"Should a member desire to possess any particular picture of the collection, exchanges to be effected individually."

We subject this amendment to the vote of all members. If a majority decides in its favor proper arrangements will be made by the Board of Officers.

Address your vote to the President of the Club.

In quality and quantity the February exchanges surpass anything heretofore offered. There are several of them that can vie well with the best photographs made by American amateurs, and we are proud to see such excellent work come from Chautauqua students.

In the first category we place the picture sent by H. E. Canfield, of Akron, O., whose "Scene on the Cuyahoga River" is a perfect masterpiece. Its equals in every respect are the "Palmetto Tree," by R. H. Scadin, of Florida, and the very beautiful "Snow Scene," of Stella Boardman, of New York. Artistically is next in order "River Willows," by J. C. Carpenter, of Ohio, which, notwithstanding its general good quality, might be more detailed in the dark foliage, had the negative been taken on a color-sensitive plate. Another triumph for the Waterbury B lens is recorded by the contributions of A. Neal and W. S. Wood, of Colorado, whose pictures are as handsome and accurately made as they are interesting. Remarkable to say, these two gentlemen of the Rockies enjoy themselves in opposite extremes. Neal prints entirely too dark, and Wood's pictures are too light, in the majority. "A View on the Assembly Grounds," by James Beattie, is preferable to the last two, on account of the uniformity in tone and depth, the prints of the collection being all alike. Friend B. sustains his reputation by his fine work. Mary S. Turner, of Boston, has an interior on bromide paper made from negative having been exposed twice, once for the windows, then for the rest. The effect is good and quite harmonious. She is well aware that the

negative would print much better on albumen paper, but for want of time, and on account of bad weather, was compelled to print by artificial light.

Lucy D. Baldwin, of Roanoke, Va., has chosen a subject of more than usual interest: "Ward in Hospital of Sister of Charity," a touching scene and good photograph. The muddled appearance of the white wall is not due to careless development as might be supposed, the wall is in reality in that condition.

We will now throw a glance at the pictures taken by instantaneous exposure:

"The Happy Family," by W. G. Geisse, of New York, a trifle harsh, perhaps, is nevertheless a very interesting reproduction of nature.

Ella Moore, of Boston, has a Chautauqua view. Her contribution is distinguished by being the cleanest, sharpest, and most accurately made pictures of this Exchange.

We welcome our ex-Secretary, Ella Switzer, on her return to the Club. The two 5 x 4 kodaks, scenes in St. Augustine, Florida, show distinctly she has not been idle while sojourning in the sunny South.

"Lighthouse," Gardner's Bay, L. I. Sound, by Mrs. C. L. Pierce, is from an excellent negative, as we know from personal inspection, but from the often occurring bad quality of paper and the poor weather of late, not all of her prints are of equal good quality. Mrs. P. wishes to be excused on that account.

"Ice Cutting," by Adelaide Skeel, of Newburgh, N. Y., a blue print from negative of her own so often admired character.

"View of Bridge," by M. Louise Ewen, of New York, taken with a Waterbury hand camera, a neat and cleverly made picture.

Portraiture is represented but by one member, Brother W. G. Hart, our Assistant Secretary.

It is a group of young mother and babe taken by timed exposure, well lighted and in very good pose.

Of other pictures presented there is yet a very pretty little view by Percy Wells, of Cincinnati, O. The negative will bear intensifying, when it will print more brilliant. Ella White's, of Providence, R. I, "Banjo Player," has been favorably spoken of before this. Our fair friend has met with some accidents in her printing and toning operation. Hence the poor copies, which she will replace with better ones as soon as possible.

John Scheide, of Titusville, Pa., has an instantaneously taken snow scene. From over-exposure the negative is too monotonous to print well on albumen paper. Omega and slow printing would have given better results.

The President of the Club expresses sincere thanks to the members for the exhibits made. There is still hope, and should the proposed amendment be adopted, many of the present difficulties might be overcome, and the Club be capable to take in an unlimited number of members.

Queries Answered.

No. 484.—1. Are Cramer C plates more sensitive than Carbutt's? Anyway, I'm accustomed to Carbutt's, I like them, and think I shall continue using them for the present. I am not making a specialty of instantaneous work.

2. At this season of the year, how short an exposure can I give (Eclipse No. 27 plates), and how large a stop for said exposure? for out-door work, I mean; subject—horses, dogs, etc. I tried it without any stop, but do not like the picture.

3. You spoke of neutralizing the gold bath with borax instead of bicarbonate of soda. I tried that last summer; the result was, the prints shaded more perhaps on the purple, but they were not "black," and I came to the conclusion I could not get "blacker tones" without using freshly sensitized paper, which I had not time to do.

4. If a plate is sufficiently developed, the fixing bath fresh, and of normal strength, why does it take some plates so much longer to fix than others?

5. What is "Weber's Liquid Opaque"? Can it be used for lightening shadows in landscapes or—in a diluted state—shadows on faces?

Answer.—1. If you are accustomed to Carbutt's plates do not change. Admitting even other plates being more sensitive, you do not want them for your class of work.

2. Take stop *f*/22, and if the light is good a long second will do.

3. Why object to the beautiful purple tone of the gold borax bath? If we mistake not you are using pink paper; were you to adopt the pure white, your tones would be certainly blacker.

4. Not all plates are coated uniformly; some are covered with a thicker emulsion film, and take longer to fix, while those with a thinner coat fix more rapidly. Furthermore, if a freshly made hypo solution is of very low temperature it retards fixing very much, but has the solution assumed the temperature of the surrounding atmosphere, plates will fix normally. Some emulsions contain much more iodide of silver than others, Iodide of silver does not dissolve as readily as bromide of silver, hence an emulsion containing much iodide will fix much slower than one of pure bromide.

5. It cannot; for merely lightening up certain portions of a negative, cover the glass side of it with a transparent color, say carmine pure, or mixed with a little gamboge, and print in diffused light. Very pretty effects can be produced by covering, and faulty negatives be effectively corrected.

No. 565.—1. When it is so windy out of doors what can I take? All the days are so breezy. Shall I practice on out-door views or in-doors?

2. Is it possible to take pictures in an ordinary room? Has a window north and one west; it is the best room suitable in the house in which we live.

3. How long must I expose the sensitive plate with this camera? How long for out-door; how long for in-door?

4. (*a*) Please explain the "correct exposure" table in The Photographic Times, date Nov. 6th, page 558. (*b*) What does *f*/4 and *f*/8, etc. mean? The photographers here did not understand it.

5. I read that the ruby light on the plate should come from an opening smaller than the plate. The opening in my ruby lantern is about 14 x 6.

6. Is it necessary to have little scales for weighing soda, etc.? Photographer here said not, but I had a hard time to guess the exact amount. I dissolved the soda in warm water. Is this right?

7. If the picture develops too fast what can be done? If too slow, what?

8. Is there any way of telling when the picture is sufficiently developed except by experience?

Answers.—1. For first experiments we advise out-door work; a house not surrounded by trees, a barn, a bridge, anything will do to practice on, and if you succeed to get a good negative of either of them, the more pleasing will the work become.

2. Read the article on pages 80 and 81 "American Annual of Photography" for 1892.

3. With the plates you have now, and with your camera, expose out-doors instantaneously, by strong light with rapid speed and smaller stop, in subdued light slowly with largest stop.

4. (*a*) Determine the relative sensitiveness of your plate by experiment, and then calculate with the aid of the tables. If, for example, a fairly lighted interior takes with your lens stopped down to *f*/11, two minutes and twenty seconds, your plate is but half as sensitive as that used by Prof. Burton, and, consequently, the exposure for a portrait in well-lighted studio would be three and one-third of a second, etc. (*b*) F, the numerator, stands for focal length, the denominator of the fraction for that part of it. The time of exposure is inversely proportionate to the squares of the diameters of the diaphragms.

5. It does not matter how large the opening, provided the ruby glass is of proper quality. Copper-flashed glass does not allow blue and violet rays to pass; gold-flashed glass does so.

6. Most certainly! No one can guess correctly the quantity of any substance, no matter what the specific gravity may be.

7. In the first instance restrain, in the second accelerate. Read the respective lessons.

8. Some will tell you, when the picture becomes visible on the glass side of the plate; but that is a rule not capable to stand correct under all circumstances. If development has proceeded as it should examine the plate by transmitted light. When all those portions white or bright in nature appear absolutely black, and all half-tones are brought out in detail, you may stop development.

Pictures Received.

No. 487.—Reproductions from prints by the light of two ordinary petroleum lamps, Beck lens, stop *f*/30, time of exposure ten minutes, developed with Chautauqua hydrochinone in one solution. Absolutely black and white negatives, printed on Star bromide paper, and developed with para-amidophenol, give perfect fac-similes of the originals. We hope the student will continue with these highly interesting and instructive experiments.

No. 495.—Group of two gentlemen printed on self-silvered three crown albumen paper. Not toned sufficiently and not printed dark enough. Be careful to wash from the print all free nitrate of silver, and your tones will be better ultimately.

"Our Sister," a very prettily arranged genre picture, excellent negative, printed poorly on aristo paper. "Mamma" is also from a good negative, and the print of the same quality as the foregoing. "Young Girl and Dog" is a good negative, and the several prints from it of a variety of tones, but neither one of them of acceptable color. Do not use aristo paper, adhere to the legitimate method of printing, use Three Crown paper, silver it yourself, and adopt the toning bath recommended by the manufacturers of the paper.

No. 563 sends two bromide prints from a very fair negative, and two Omegas fixed and toned in one solution, of the same.

The bromides are feeble, monotonous, and lack brilliant whites. They were developed with ferrous oxalate. The student wants to know why he has failed to obtain better results, and we answer that, in the first place, we would advise him to select for

bromide printing the No. 2 Star bromide paper of an emulsion number not below No. 50. Develop with eikonogen, Chautauqua formula, or the No. 1, with para-amidophenol, page 583 of this journal.

Of the two Omega prints, one is fairly good, the other is enormously over-toned; hence the greenish black and yellowish whites. Read the article on page 87 of the "American Annual of Photography for 1892."

No. 570.—A street scene of Charleston, S. C., a first attempt with the Waterbury 4 x 5 hand camera. Highly encouraging results, but had the student exposed instantaneously, or at least with the slowest motion of the shutter, the exposure might have been approximately correct. As it is very much over, we can only recommend to use the drop shutter wherever it is practicable to do so.

No. 553.—Portraits of young lady and of a little girl printed very poorly upon collodion aristo paper from excellent negatives. We advise you to drop the unreliable and difficult aristo paper, adopt instead of it the Scovill Omega, use the combined bath, page 194, PHOTOGRAPHIC TIMES, Vol. XXI., and print sufficiently deep in diffused light; or why not return to the orthodox Three Crown albumen paper?

No. 482.—(1) A $6\frac{1}{2}$ x $8\frac{1}{2}$ of a horse is an excellent picture; we have not often seen horses photographed with equally good effect.

(2) Instantaneous landscape, very fair, a little under-exposed.

(3) Attempt at portraiture, tolerably well done. We wish the student continuous good success.

No. 454 has sent us three excellent pictures, views of the Gardner Earl Crematory, of Troy, N. Y. They were taken with a Scovill Detective and Beck lens, the exterior instantaneously, and the two interiors by the aid of flash-light, Scovill magnesium cartridges. We were agreeably surprised to see such beautiful work done by the student, who but a year ago knew nothing whatever of photographic operations. Why does not Miss M. join the Exchange Club? She would be a very desirable acquisition.

No. 221.—A 5 x 7 of St. Bernard dog, by instantaneous exposure. Excellent position of the animal, perspective perfect, no exaggeration as we find sometimes in such pictures. It was taken with a Steinheil aplanet, Series III.

An enlargement of it on 11 x 14 plate does full justice to the original, for it is equally sharp and well detailed.

No. 461.—An 8 x 5 of the home of Miss Warren, the authoress of "Wide, Wide World." It is a very artistic view of an old country residence, with excellent light and shadow effects. Printed in neutral tone on bromide paper enhances its beauty very much. There are furthermore three blue prints, one of them of a cow, from very fine negatives, but of the tobogganing groups we can but say, what rarely occurs, the prints are better than the negatives.

No. 338.—Photographs of single and bunches of flowers, of lilies, roses and chrysanthemums, taken on Carbutt orthochromatic plates with Steinheil group antiplanet, Series II., are very beautiful pictures. Those of larger dimensions, nearly the size of the originals, are wanting color only to make them perfect representations of natural flowers. All possible credit is due to the fair young student.

No. 347 continues to make very fine lantern slides upon Carbutt gelatino-albumen plates. He develops them with our own eikonogen in one solution, and when inadvertently a plate is but underdeveloped he intensifies with nitrate of uranium, ferricyanide of potassium and acetic acid, at the same time producing a slide of proper intensity, and of agreeably warm tone.

No. 193 has shown us several 8 x 10 and $6\frac{1}{2}$ x $8\frac{1}{2}$ transparencies printed upon Carbutt *A* plates by artificial light and developed with the old and reliable ferrous oxalate developer as described in the Chautauqua lessons.

We are sorry to say neither one of the many comes up to our expectations. They are very much over-exposed in some instances, and in others very much under. Let it be remembered, a negative of average intensity, the light of a fish-tail gas burner at a distance of about three feet, requires with ferrous oxalate an exposure of about twenty to twenty-five seconds. Be careful to have your developer not too acid, else harsh and glassy diapositives will result, even if the exposure be correct. We recommend for that kind of work the use of our own eikonogen in one solution; by altering its concentration the process of developing is very easily controlled, and the tones attained are of a neutral black color, provided the exposure is not over.

THE PHOTOGRAPHIC TIMES.

AN ILLUSTRATED WEEKLY JOURNAL DEVOTED TO THE ART, SCIENCE AND ADVANCEMENT OF PHOTOGRAPHY.

Issued every Friday.

W. I. LINCOLN ADAMS, Editor.

SUBSCRIPTION RATES.

Weekly (illustrated) for one year.....$5 00
" " " six months..... 2 50
" " one month's trial..... 50

Single copy, 15 cents.
The Weekly PHOTOGRAPHIC TIMES and Semi-Monthly *Philadelphia Photographer* to one address for one year, $9.00.
On Foreign Subscriptions $1 00 is added to pay postage.
Remit by Express Money Order, Draft, P. O. Order, or Registered Letter.
Subscriptions to THE PHOTOGRAPHIC TIMES received by all dealers in photographic materials in this and foreign countries, also by the American News Co. and all its branches.

ADVERTISING RATES.

Size of advertising pages, 6¼x9¼ inches; outside size, 8½x11¾ inches.
One page, each insertion.....$20 00
Half page, per insertion..... 10 00
Quarter page, per insertion..... 5 00
Eighth " " " 2 50
Business Notices, not displayed, per line..... 20
Discount for term contracts.

Copy for advertisements must be received at office one week in advance of the day of publication. Advertisers receive a copy of the journal free, to certify the correctness of the insertion.
All literary contributions, correspondence, "Queries," etc., should be addressed to THE EDITOR; all advertising matter to the Publishers,

THE PHOTOGRAPHIC TIMES PUBLISHING ASSOCIATION,
423 Broome Street, New York

Commercial Intelligence.

A LETTER FROM CHARLES SCOLIK.

PROF. CHARLES EHRMANN.

Dear Sir: "The American Annual of Photography" excels in every way all the previous volumes. It is surprising to see the progress made in America in the production of autotypes. Those of the "Annual" are surprisingly fine, and without close inspection one is incl ned to take them for *Lichtdrucks*.

In this country much has been done in the same branch, but candidly speaking, our work is far below that of the Americans.

The volumes of the "Annual" are an ornament to my library, and to read them offers much information.

Charles Scolik.

WIEN, Austria.

An Increase of 33 Per Cent.—The number of subscribers to THE PHOTOGRAPHIC TIMES have increased just 33 per cent. since January 1, 1891; and new subscribers are being received in larger numbers than ever before.

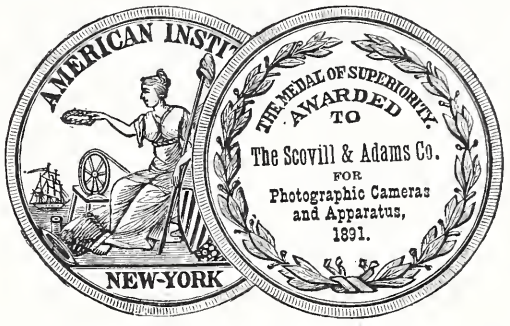
"Vivat! crescat!! floreat!!!" as the Chautauquans say.

In view of the fact of the increased circulation of THE TIMES and its even greater increase in influence and value as an advertising medium, the advertising rates will be increased July 1, 1892. All old advertisements will be continued at the old rates, of course; but new advertisers will be charged in accordance with the new rates. Those who become advertisers, therefore, previous to July 1st will receive the benefit of the increased circulation at the old rates.

On and after July 1, 1892, the regular advertising rates of THE PHOTOGRAPHIC TIMES will be as follows:

One page, per insertion, $25.
One-half page, per insertion, $15.
One-quarter page, per insertion, $8.
One-eighth page, per insertion, $5.
Business notices, not displayed, per line, 25 cents.
Space on the covers and other preferred situations 25 per cent. extra.

The Special Bronze Medal of Superiority, awarded by the American Institute to The Scovill & Adams Co. for photographic cameras and apparatus, has been delivered; and it has been added to the large collection of silver medals awarded by this and other institutions to The Scovill & Adams Co.



The first edition of 16,000 copies of "The American Annual of Photography and the Photographic Times Almanac" for 1892 is about exhausted, and a second edition is contemplated by the publishers in view of the fact that orders continue to come in in undiminished numbers.

We wonder if our subscribers have thought of the low price at which they receive THE PHOTOGRAPHIC TIMES by the year? $5 for fifty-two numbers makes each number less than 10 cents. Any frontispiece of THE PHOTOGRAPHIC TIMES would cost five times that amount if bought singly. But nothing can be too good or too cheap for our readers, is the thought of our publishers.

Have you a complete set of THE PHOTOGRAPHIC TIMES bound from Vol. I. on? If so, you have a set of books which is every day becoming more valuable. Many of the volumes are at a premium and cannot be obtained at any price.

Our publishers recently received an order for a complete set of the bound volumes of THE PHOTOGRAPHIC TIMES, as far bar back as possible, for a photographic library; but, of course, they were unable to make the set complete. Back bound volumes of THE PHOTOGRAPHIC TIMES are becoming more scarce every day, and a complete set is becoming proportionately more valuable.

Those who are contemplating completing their sets should, therefore, secure the missing volumes at once, so far as possible. We refer all such to the advertisement on page 4, where a few of the back volumes are advertised. We ourselves shall be glad to buy any of the missing volumes, as follows: Vols. I., IV., V., VII., VIII., X., XII., XVI., XVIII., XIX.

A Permanent Subscriber.—I intend to take THE TIMES as long as—well, as long as I live, or until I can't raise the money.—GEO. G. BRUCE, Thornburg, Iowa.

"I am highly pleased with THE PHOTOGRAPHIC TIMES, but especially with the 'Annual' for '91 and '92, which I recently procured. If I could not get others, $5 apiece wouldn't buy them."—V. W. SANES, Augusta, Ga.

Have you a complete set of "The American Annual of Photography" from Vol. I. 1887? The year for 1889 is already at a premium and readily obtains double its publishing price.

The Scovill & Adams' Plain Felt Background, recently introduced, is a great boon to all photographers, both professional and amateur.

It is made of strong, thick and even stock, and is of an agreeable neutral drab color. It is especially suitable for vignetting. The texture of the cloth absorbs instead of reflecting light, and thus produces soft effects, and agreeable depth in the print. The liability of defacement by water stains is obviated.

The prices of these grounds are as follows:

4 feet x 6 feet	$2 50
5 " x 6 "	2 75
6 " x 6 "	3 00
6 " x 7 "	3 50
6 " x 8 "	4 00

These sizes may be sent by mail, on receipt of 35 cents extra.

Business Notices.

FOR SALE.—A new Portrait Outfit, size 8x10, Scovill Camera and Stand, and full assortment of everything needed. Will sell at a bargain, as I am in other business, Descriptive list for stamp.
C. W. HART, Lewiston, N. C.

FOR SALE.—Splendid first-class gallery, all new, best location in New York; toney patronage; cabinets $8.00. Will sell for third value. Very little cash necessary; easy payments for balance. Poor health. Address immediately, FIRST-CLASS, Box 178, Uptown *Herald*, N. Y. City.

HAND CAMERAS WORTH HAVING.—The Premier, combined View and Detective Camera, for plates, cut films, or roll-holder; 4x5 and 5x7 sizes. Prices $18 to $55. The Montauk, in 4x5 and 5x7 sizes, for plates or roll-holder. Prices, $25 to $55. Mail orders promptly filled by C. M. BROCKWAY,
33 Worth St., New York.

AT HALF PRICE.—I have an exceptionally fine 8x10 Rectiscope Rapid Rectilinear Lens costing $37.50, never used, which I will sell for $19.00.
W. A. ETTLIN,
5 Chatham Square, New York.

FOR SALE.—One of the oldest, most centrally located and best established photographic studios in Boston. Address 493, POSTMAN No. 31, Boston, Mass.

WANTED.—A strictly first-class photographer who can work wet or dry platos, for copying, for photogravure and half-tone relief. A. W. ELSON & CO.,
146 Oliver St., Boston.

A RAPID RECTILINEAR LENS of the Bausch & Lomb make, covering instantaneously a 5x8 plate, for sale. $12.00, C. O. D. Address "LENS," care THE PHOTOGRAPHIC TIMES.

THE FINEST Platinotype Solar Enlargements and contact prints, in black and sepia, are made by
THE PLATINOTYPE CO.,
39 South 10th St., Philadelphia.
Send for price lists.

THE UNDERSIGNED has a few 6x5 Dallmeyer Rapid Rectilinear Lenses which he will sell for 20 per cent. from list prices. These lenses are a late importation and are all warranted. Address "TOURIST,"
care The Scovill & Adams Co.

OWING TO

DISSOLUTION OF PARTNERSHIP

And Removal, we offer for February only OUR ENTIRE STOCK OF AJAX, LECLAIR, ECLIPSE AND FAIRY LENSES AT COST.

"AJAX."	REDUCED FROM	PRESENT PRICE.
4 x 5	$9 60	to $6 00
5 x 8	11 20	" 7 00
6½x 8½	16 00	" 10 00
8 x10	19 20	" 12 00
10 x12	32 00	" 18 00
11 x14	46 40	" 24 00



FOUR-PAGE CIRCULAR OF "GOODS AT COST" SENT ON APPLICATION.

BUCHANAN, BROMLEY & CO., Importers,
1226 Arch Street, Philadelphia.

THE '89 ANNUAL.—I have a paper-covered copy of *The Photographic Times Annual* for 1889, in good condition, which I will sell for one dollar ($1 00). ANNUAL, care THE PHOTOGRAPHIC TIMES.

FOR SALE CHEAP.—I will sell my Bridges' Photographic Flash Light Diffuser, which cost me $3.50, for $2.75, as I am going out of the business. The Diffuser has never been used. It is exactly as good as new. Address M., care THE PHOTOGRAPHIC TIMES.

WANTED.—Vols. 1, 4, 5, 7, 8, 10, 12, 18 and 19 of THE PHOTOGRAPHIC TIMES, bound or unbound. THE PHOTOGRAPHIC TIMES PUBLISHING ASSOCIATION.

A BARGAIN.—A No. 6 Gray's Periscope Lens in first-class condition. List price, $22.00. Will sell for $15.00. Spot cash. Address LENS BARGAIN, care THE PHOTOGRAPHIC TIMES.

PEACOCK FEATHERS for decorating. Send for dealers' prices. W. J. STANTON,
Box T, Lyndon, Vt.

NO FUMING, NO BLISTERS.—Experiment with all the "papers" advertised, and learn. But when you want to make choice, spotless prints use WISSAHICKON SENSITIZED ALBUMEN PAPER. Tone it in compound bath and squeegee on ferro plate, if you like. Send 2 cent stamp for 4x5 sample to JOHN HAWORTH,
641 Arch Street, Philadelphia.

LANGILL. 10 East 14th Street, makes all kinds of outdoor negatives. Portrait photographers will do well to consult him when such is required. First prize for Architectural photographs, P. A. of A.

"THE PHOTOGRAPHERS' BOOK OF PRACTICAL FORMULÆ."—In order to make way for the SECOND EDITION of this popular book we make the following prices on those now in stock: Paper covers, 30 cents each; cloth, 60 cents each. Never before has a book of such great value been offered for so little money.

R. H. MORAN,
396 Broome Street, New York.

A SURE WAY TO PREVENT BLISTERS.—Use Haworth's Sensitized Paper. It won't blister. Spalding has it, so have Obrig Camera Co., and Z. T. Benson.

JOHN HAWORTH, Manufacturer, Phila.

THE finest-fitted Dark-Rooms in the United States are open for the accommodation of Amateurs, at 122 W. 36th Street. DARLING, Photographer.

PHOTOGRAPHIC LIBRARY

OF THE LATE

WILLARD H. FULLER.

The following photographic publications, constituting the photographic library of the late Willard H. Fuller, are offered for sale for the benefit of the widow. The books are all in perfect condition. The regular prices are annexed. Offers are solicited for the entire library:

1 Copy PHOTOGRAPHIC TIMES, Vol. 11, Cloth Bound	$3 00
1 " " " 12, "	3 00
1 " " " 13, "	3 00
1 " " " 14, "	3 00
1 " " " 18, Part I., Cloth Bound	3 50
1 Copy PHOTOGRAPHIC TIMES, Vol. 18, Part II., Cloth Bound	3 50
1 Copy PHOTOGRAPHIC TIMES, Vol. 19, Cloth Bound	6 00
1 " TIMES ALMANAC, '88, Authors' Edition	5 00
1 " " " '89, " "	5 00
1 " " " '92, " "	5 00
1 " SERIES No. 4, Library Edition (Spanish)	1 00
1 " " 5, " "	1 00
1 " " 12, " "	2 00
1 " " 14, " "	75
1 " " 21, " "	1 00
1 " " 23, " "	1 00
1 " " 24, " "	1 00
1 " " 25, " "	1 00
1 " " 27, " "	1 50
1 " " 31, " "	1 50
1 " " 37, " "	1 50
2 " BRITISH JOURNAL ALMANAC, for 1882, Cloth Bound	1 00
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PROCESSES OF PURE PHOTOGRAPHY. By Burton and Pringle. Author's Copy	5 00
1 Copy SERIES No. 6, Paper Covers	50
1 " " 9, " "	75
1 " " 15, " "	25
1 " " 17, " "	50
1 " " 20, " "	50
1 " " 26, " "	1 00
1 " "THE KNACK," " "	25
1 " INTERNATIONAL ANNUAL, 1888	50
1 " THE STUDIOS OF EUROPE	50
1 " CYCLOPEDIC INDEX, for 1891	10
	$69 10

Address all offers to THE PHOTOGRAPHIC TIMES.

WANTED.—Choice stereoscopic negatives from al parts of the world. Address F. F. BRAILLARD, JR.,
423 Broome St., New York

FOR SALE.—At specially low prices, a fine lot of Chance's Optical Glass, both Crown and Flint, which was imported for a manufacturer who has retired from business. For further particulars address
Messrs. CHARLES COOPER & CO.,
194 Worth St., New York City.

FOR SALE.—A copy of "The American Annual of Photography" for 1889, a few leaves of the standard formulas and all the advertisements wanting, will be sold for $1.00. Apply to
CHAS. EHRMANN, of PHOTOGRAPHIC TIMES.

PORTE-FEUILLE CARDS.

The cards for these Albums may be quickly and securely attached to the guards after the prints are mounted and burnished.

Price-list, including 25 sheets of Collins' best quality White Cards:

No. 2, 10x12 for 6½x 8½ Photographs.....$2 00
" 3, 11x14 for 8 x10 " 2 25

Price-list, including 25 sheets of Collins' White Muslin-Back Cards:

No. 5, 10x12 for 6½x 8½ Photographs.. .....$2 00
" 6, 11x14 for 8 x10 " 2 25

THE SCOVILL & ADAMS CO.,
423 Broome Street, New York.

THE PLATINOTYPE.

(PATENTED.)

Photographers can increase their business during the holidays by advocating the Platinotype.

Send 30 cents for a specimen print, portrait or landscape, on our new heavy India Tint Mounts.

WILLIS & CLEMENTS, Patentees,
39 South 10th St. Philadelphia.

Employment Offered and Wanted.

(These advertisements are inserted free of cost to photographers out of employment, in order to help them find situations.)

SITUATIONS OFFERED.

At once a good general workman; must be a good retoucher. Samples, with photo. of self, and references required. State salary wanted. Virginia Photo. Company, Waynesboro, Va.

An operator, must be a first-class positionist; steady place to the right man. De Young's, 815 Broadway, New York.

SITUATIONS WANTED.

A position with a photographer, by a young man strictly temperate, age 23, to learn the photo. business; good reference. Write, stating terms, to P. F. Gary, Channel, Newfoundland.

A young man, good retoucher and printer, is anxious to obiain employment; or will go as general assistant. Address Fred Davidson, 1230 Peter St., Philadelphia, Pa.

A first-class artistic negative retoucher desires a situation. Is well experienced in the retouching of landscape negatives. Best of references from leading photographers east and west. Address Julius Hoffmeister, 696 Leonard Street, Greenpoint, Brooklyn, N. Y.

EDITION DE LUXE.

A few copies of the edition de luxe of the

American Annual of Photography

remaining, we offer them at the very low price of $2.50 per volume. They are all printed on special laid paper, and are most beautifully and substantially bound.

1887—Bound in White Leather.
1888—In special Cloth Binding.
1889—Only One Copy left.
1890—In full Morocco Leather.

Also Two author's copies of the Rev. W. H. BURBANK'S popular

"Photographic Printing Methods,"

printed on laid paper and bound in full morocco leather.

PRICE, - . - $3.00

ONLY A VERY FEW SETS LEFT.

Photographic Studies.

No. 1.—A Collection of Photogravures from the Best Representative Photographic Negatives by Leading Photographic Artists.

THE COLLECTION INCLUDES:

"Dawn and Sunset".....H. P. Robinson
"Childhood".....H. McMichael
"As Age Steals On".....J. F. Ryder
"A Portrait Study".....B. J. Falk
"Solid Comfort".....John E. Dumont
"Ophelia".....H. P. Robinson
"No Barrier".....F. A. Jackson
"El Capitan".....W. H. Jackson
"Still Waters".....J. J. Montgomery
"Surf".....James F. Cowee
"A Horse Race".....George Barker
"Hi, Mister, may we have some Apples?".....Geo. B. Wood

Printed on Japan Paper, Mounted on Boards. Size, 11x14, in Ornamental Portfolio.

Price, - - - - - $3.00.

Sent, Postpaid, on Receipt of Price, by

THE SCOVILL & ADAMS CO.

BOUND VOLUMES
—OF—
THE PHOTOGRAPHIC TIMES.
Volume XXI.

We are now ready to supply our readers with bound volumes of THE PHOTOGRAPHIC TIMES, uniform with preceding volumes.

They are substantially bound in neat red cloth, with and without advertisements.

With Advertisements, complete, in two parts, $7.00
Without " " in one volume, 6.00

When the numbers of THE TIMES for the year are returned, *in good condition*, we allow full subscription price for them, charging only the cost of binding, viz., as follows:

With Advertisements, in two parts, - - $2.00
Without " in one volume, - - 1.00

A bound volume of THE PHOTOGRAPHIC TIMES, with its full and complete index, is, as it has been termed,

"A COMPLETE PHOTOGRAPHIC LIBRARY."

There are a limited number of volumes. Order at once if you want a bound volume.

THE PHOTOGRAPHIC TIMES PUBLISHING ASSOCIATION,
423 BROOME STREET,
New York City.

BACK BOUND VOLUMES
—OF—
THE PHOTOGRAPHIC TIMES
ARE VERY SCARCE.

We have but a few copies of a few years, which we can supply those who desire to complete their sets, as follows:

Vols. 3, 4, 6, 9, 11 and 14,

bound, with advertisements, in red cloth, uniform with other volumes, at three dollars ($3) each.

Vol. 15, - - - - - $4.00
Vol. 16 (in two parts), - - - 7.00
Vol. 17 (in one volume), - - 6.00
Vol. 18 (in one volume), - - - 6.00
Vol. 19 (in one volume). - - 6.00
Vol. 20 (in two parts), - - - 7.00

Other volumes are at a premium. We cannot supply them, *at any price*, as we have none left in stock and do not know where we can get any.

The above prices are subject to change at any time.

Order at once if you want them at these prices.

THE PHOTOGRAPHIC TIMES PUBLISHING ASSOCIATION,
423 BROOME STREET,
New York City.

CONTINUOUS BACKGROUNDS

Shown in Photographs with Subjects, in our new Sample Book.

Also the best and most complete line of accessories made.

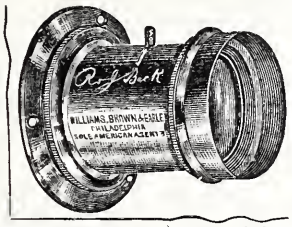
J. W. BRYANT CO.,
La Porte, Ind., U.S.A.

BLUE PAPER.

A *good* article in this line is always hard to find. The *package* paper is variable and not to be relied upon. The motive of this little "Ad." is to tell you of our *special* Blue Paper. It is made fresh every day, on imported paper; is 50 per cent. cheaper than other papers, and withal is the best. Per yard (27 inches wide), cut to any size, 25c. Send 5c. for sample. THE OBRIG CAMERA CO.,
163 Broadway, New York.

If you are thinking of Purchasing a PHOTOGRAPHIC CAMERA do not fail to write us for prices. If you wish to get SUPERB RESULTS get a

BECK LENS



Mr. JNO. C. HEMMENT, Photographer to *Frank Leslie's*, states: "It is the only lens which will do my work."

WILLIAMS, BROWN & EARLE,

PHOTOGRAPHIC SUPPLIES AND PRINTING,

Northeast corner *10th and Chestnut Sts.,* Philadelphia.

Sole American Agents for the Beck Lens.

Correspondence Solicited.

THE NEW KODAKS.

WE HAVE THEM!! $6.00 TO $25.00.

They can be loaded in the *daylight*, and we give full and careful personal instructions gratis. We develop, print and mount in albums at Eastman's prices. Only *first-class* work turned out. THE OBRIG CAMERA CO.,
163 Broadway, New York.

S. P. C. EIKOQUINOL DEVELOPER.—This "ne plus ultra" developer for timed and instantaneous exposures, lantern slides and all other kinds of transparencies, photo-mechanical work and bromide paper prints is now in stock and for sale at 35 cents per bottle of 8 ounces. No other developer is now used by the members of Chautauqua School of Photography; no other has attained to equally fine results.

THE SCOVILL & ADAMS CO.,
423 Broome Street, New York.

W. F. ASHE,

Artist and Designer.

A SPECIAL lot of

BACKGROUNDS.

8 feet high at $1.00 per running foot.

New Profile Accessories of Columns Cabinets, Cottages, etc., etc., etc.

76 East 9th St., N. Y., U. S. A.
Three Doors East of Broadway.

WHY NOT

when you can do so at moderate cost, place in your library the best Photographic Reference Books published? But few copies are left of the AMERICAN ANNUAL OF PHOTOGRAPHY for 1887, 1888, 1890 and 1891 in cloth binding. (Library edition.) The issue of 1889 is entirely exhausted. If ordered separately the cost, including postage, is $4.60. If the full set is ordered we will send them to you, postpaid, for $4.00. Not a single copy of the 1889 edition can now be obtained, though in many instances more than double the price has been offered for it. Send early and secure a set of these valuable books before other issues are out of print.

THE SCOVILL & ADAMS CO.

The proper thing

In Photographs is the **ARISTOTYPE**

The proper thing

For making Aristotypes is the

ALPHA ARISTOTYPE PAPER

Send **30** cents for a sample dozen.
$1.70 per gross Cabinet size.

The proper thing

To protect Aristotype Prints are the

CABINET PHOTO COVERS

$2.00 per thousand.

Thos. H. McCollin & Co.

PHOTO SUPPLIES OF ALL KINDS,

1030 Arch Street, **Philadelphia.**

PHOTOGRAPHIC DIRECTORY.

F. D. Lanier Walker,
AMATEUR PHOTOGRAPHIC SUPPLIES,
18 John Street, New York City,
Successor to C. L. Littlewood & Co.

JOHN H. DALL,
618 and 620 Clay Street, San Francisco, Cal.
Photographic Supplies.
Established in 1850.

R. M. Davis.
DENVER.
The only EXCLUSIVE Photo. Stock House between the Missouri River and the Pacific Coast.

HOVEY BROTHERS,
156, 158, 160 EAST MAIN STREET,
ROCHESTER, N. Y.
We sell everything photographic. Send list of goods wanted for special estimate.
RED LETTER PRICES.

THE SCOVILL & ADAMS CO.,
SUCCESSORS TO
Photographic Department, SCOVILL MANUF'G CO.,
PHOTOGRAPHIC MATERIALS.
OFFICE AND SALESROOMS:
423 BROOME ST., NEW YORK.
H. Littlejohn, Secretary. W. Irving Adams, President.

PARA-AMIDOPHENOL HYDROCHLORATE.
THE DEVELOPING AGENT OF THE FUTURE.

With para-amidophenol there is no staining of the film as with eikonogen and hydrochinon when development is prolonged, absolute transparency and opacity is secured, and the time of exposure reduced about 30 per cent. without injury to half-tones and middle-tints.

FORMULA.

Para-amidophenol hydrochlorate.....	2 drachms
Granulated carbonate of sodium.....	10 drachms
Granulated sulphite of sodium.....	10 drachms
Water	32 fluid ounces

Heat the water to 150 deg. F.; dissolve first the sulphite of sodium, then the para-amidophenol, and finally the carbonate of sodium; filter, and keep in well-stoppered bottles. With ordinary caution this solution will keep indefinitely.

PARA-AMIDOPHENOL HYDROCHLORATE
IS NOW FOR SALE,
PUT UP IN ONE-HALF OUNCE BOTTLES,
for $1.00 per bottle.
THE SCOVILL & ADAMS CO.

When buying photographic cameras, be sure if you would have the best, that they are made by the American Optical Company, New York, and are stamped on the front board for lens and frame for ground glass—"American Optical Co., New York."

GOVAN & CRAMPTON,
Successors to MINOTT M. GOVAN,
DEALERS IN PHOTOGRAPHIC SUPPLIES,
No. 5 Clinton Place,
(3 doors from Broadway,) NEW YORK.
Fully Illustrated Catalogue and Price List mailed on application.

CARBUTT'S
EIKO-CUM-HYDRO DEVELOPER.
For Sale by all Dealers.

R. D. GRAY,
MANUFACTURER OF PHOTOGRAPHIC
LENSES,
76 BEEKMAN STREET, NEW YORK.

PHOTOGRAPHIC SUPPLIES.
TUCKER & BUTTS,
37 and 39 Court St.,
BUFFALO, N. Y.

J. S. LOPEZ & CO.,
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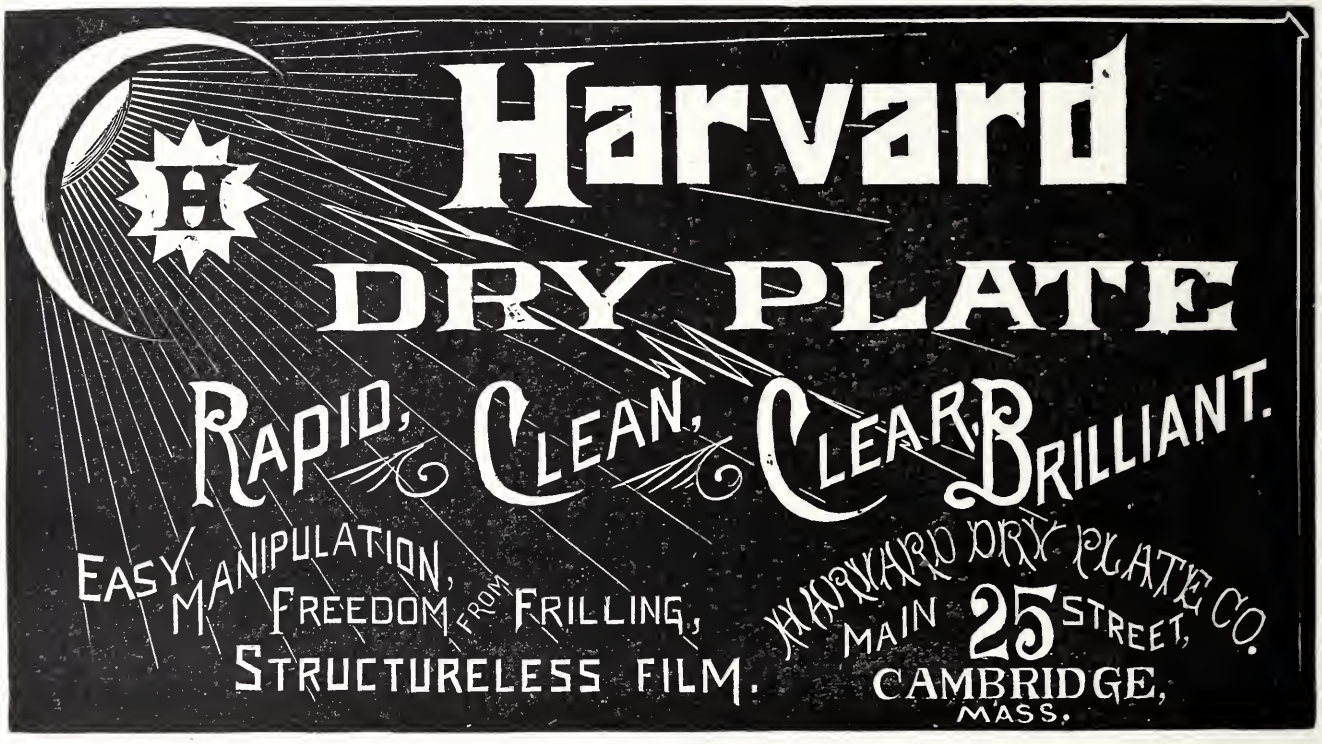
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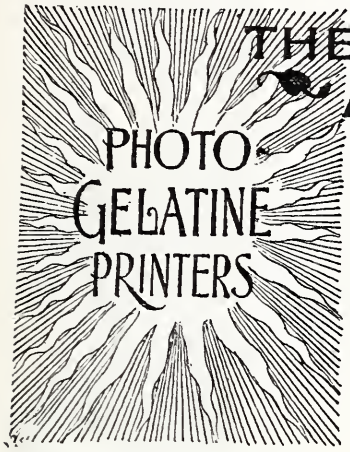
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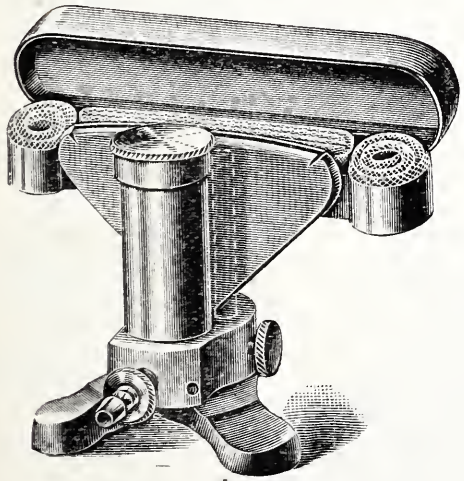
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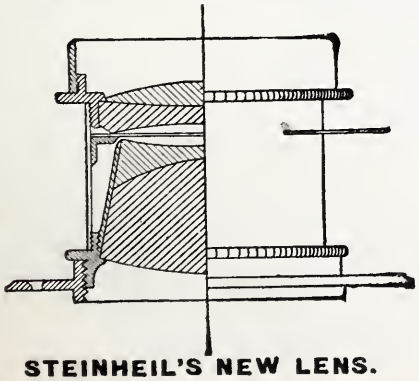
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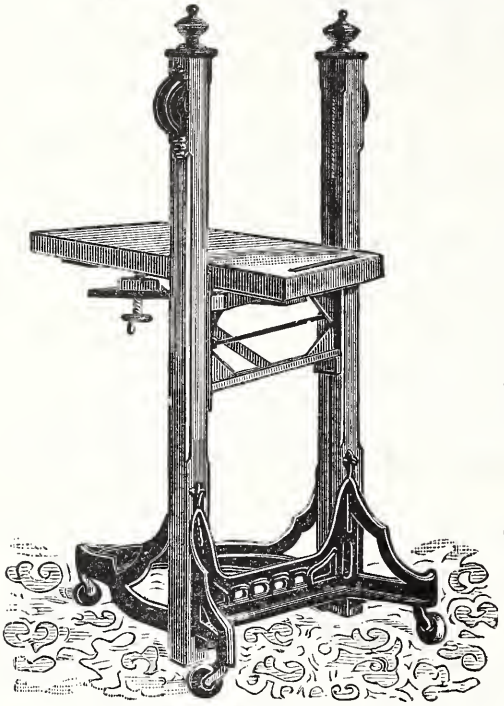
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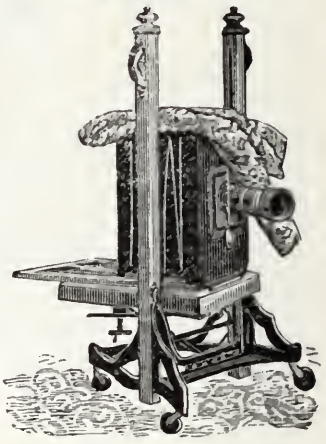
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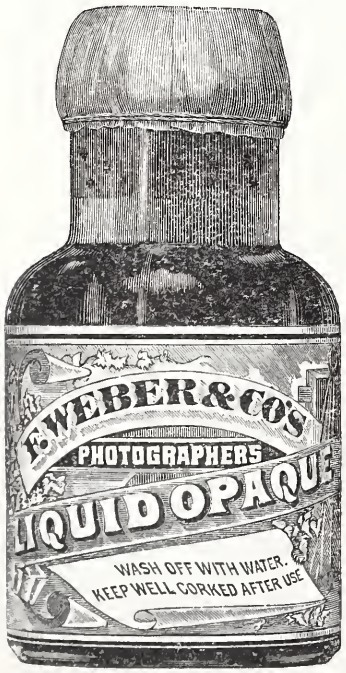
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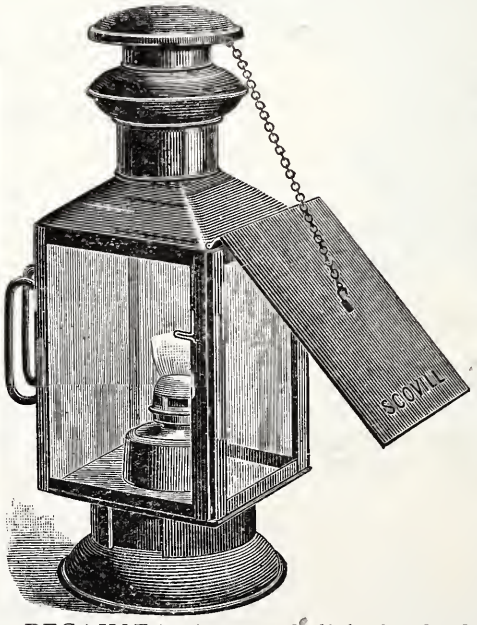
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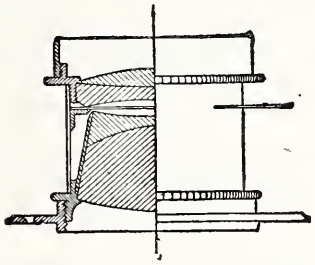
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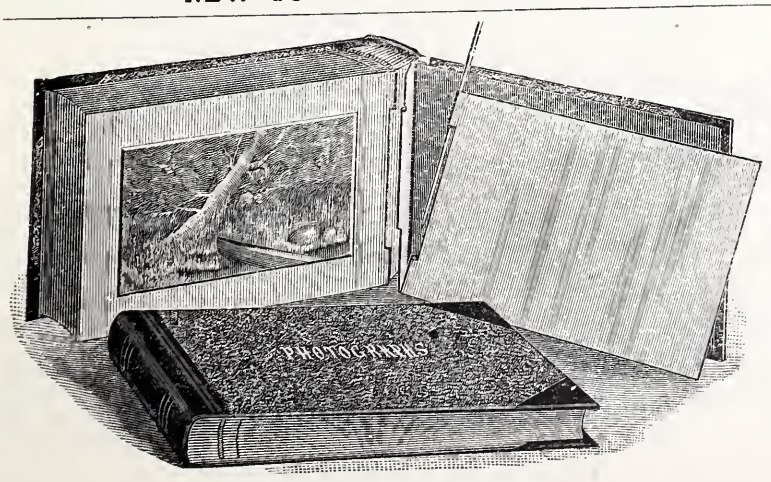
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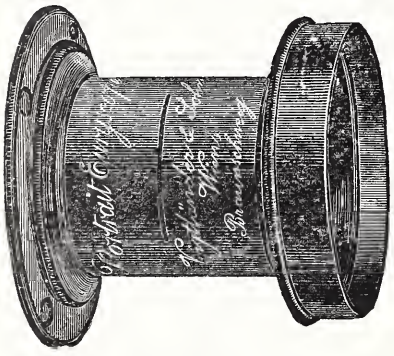
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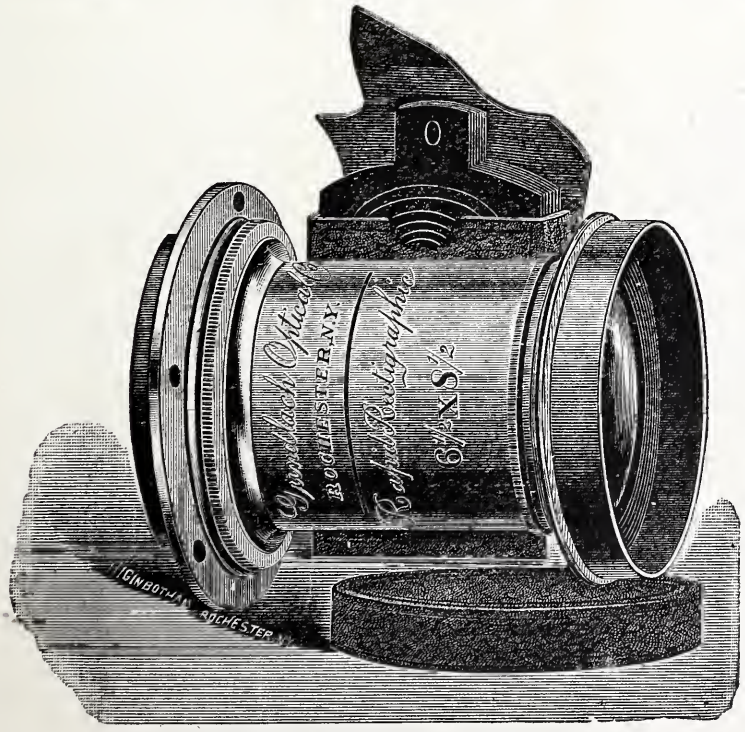
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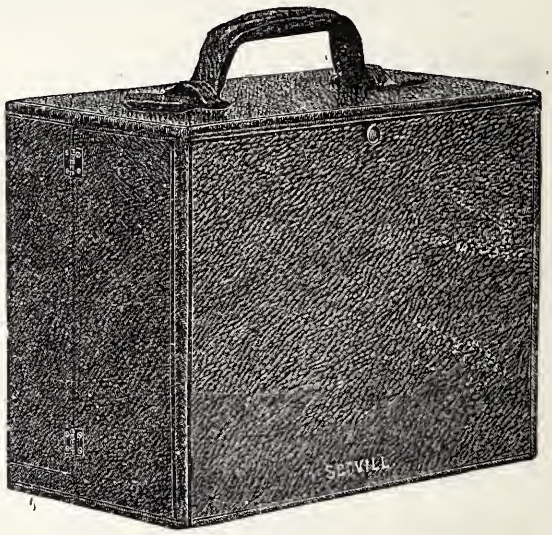
The Triplets are of different focal power, and, being perfectly aplanatic, they produce perfect pictures by themselves. Thus the new lenses actually consist of three objectives, which produce images differing in size as 2 to 3 to 4.

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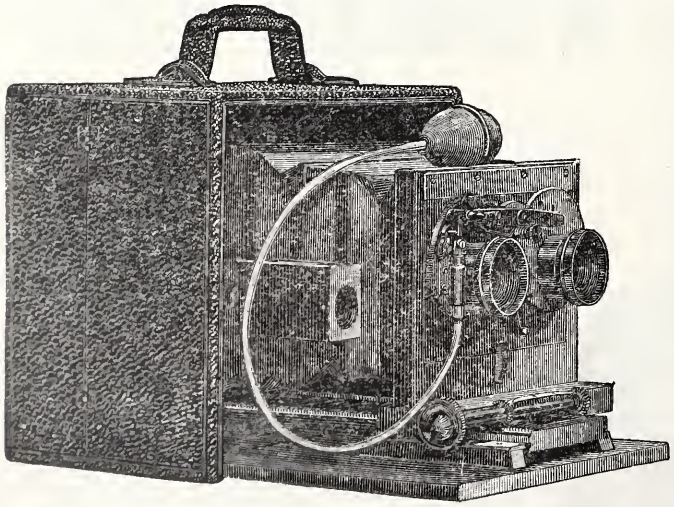
It is commonly known that of all pictures, those which are arranged to give the stereoscopic effect when viewed in a stereoscope, convey the true impression of perspective and solidity. It seems strange, indeed, that of the myriads of instantaneous pictures made, so few are taken with reference to their future use in connection with the stereoscope, *for it is only by that means that the idea of perspective and solidity can be conveyed.* We can only assign as the reason the present almost universal use of hand cameras, and that none of them have, up to this time, been arranged for stereoscopic pictures.

There is a much over-worked phrase—"the long felt want," but we think that just that, literally, will be met by the new hand camera which the American Optical Company have just finished.

The first illustration shows one of these cameras closed, and you will observe there is no external opening for finder, lens or anything to indicate that the leather-covered case contains the appliances which go to make up an instantaneous camera.

This camera measures eight inches high, nine inches long and five inches wide ; its weight is about five pounds. It has a screw plate underneath, so that it may be used with a tripod. It has a door in the back of the case, and through that opening the image thrown by the lenses may be seen on the ground-glass focusing screen.

The second illustration shows the appearance of the camera when open. The pair of Optimus Lenses is fitted with a triplex stereoscopic shutter with pneumatic release, made by the Prosch Manufacturing Company.



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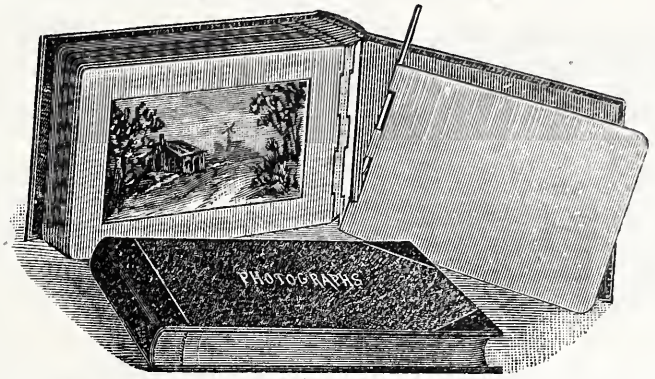
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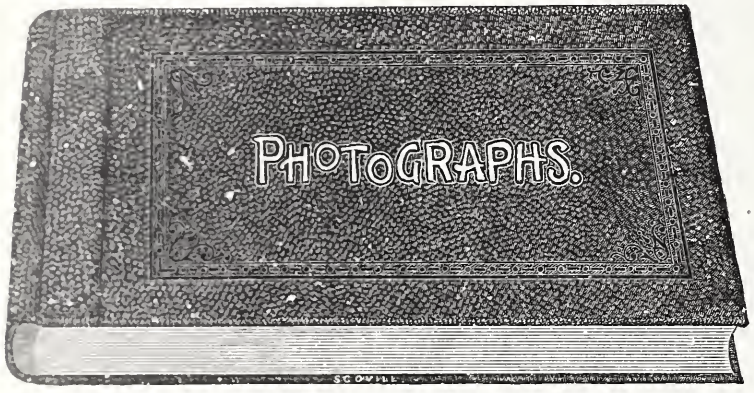
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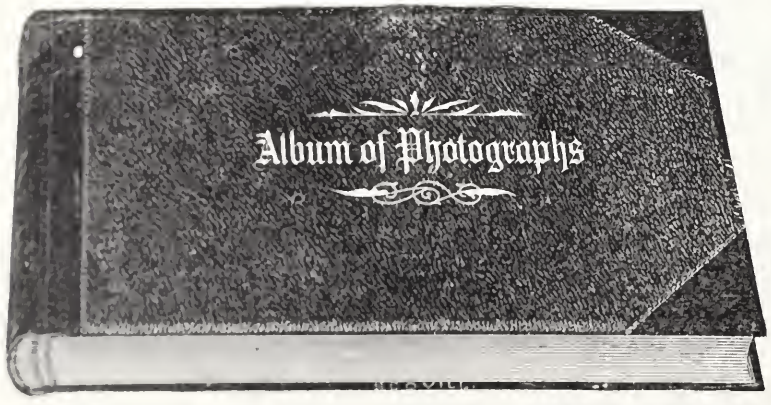
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J.F. RYDER PHOT.

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Little Sweetheart

THE PHOTOGRAPHIC TIMES.

VOL. XXII. FRIDAY, FEBRUARY 19, 1892. No. 544.

"LITTLE SWEETHEART."

WE present our readers this week with a characteristic specimen of portrait work by Mr. James F. Ryder, of Cleveland, O. The picture tells its own story. It is a beautiful portrait of a little girl, which is a picture as well as a portrait. Mr. Ryder himself suggests the appropriate title. In the biographical article which follows, the first of a series of similar articles, an interesting account is given of the photographer who made this picture. It is only fair to state that in this instance the photogravure has failed to preserve all the delicate detail and half tone which characterize the original photograph.

JAMES F. RYDER.

THE subject of this sketch was born in Ithaca, N. Y., April 25, 1826. In the winter of 1847–8 he apprenticed himself to a Mr. Robert Watson, who was doing the small cities in Central New York as a daguerreotypist, and had settled in Ithaca for the winter.

In those days there were no weekly or monthly journals filled with instructive matter pertaining to the young art, no standard books of formulas and general instructions as now, but the learner was quite dependent upon the teachings of practitioners whose knowledge was generally very limited in fact but abundant in pretense; so the beginner was often led through an unknown wilderness by an ignorant guide, when behind the black muslin curtain of the dark-room the mysteries of coating boxes and mercury bath were laid bare.

Mr. Ryder commenced under the same disadvantages others did at that time, and worked his way through the difficulties he encountered as best he could. Never quite content to plod behind others, he apprenticed himself anew to every one he found who were in advance of him, and paid again and again for knowledge, item by item, which was held, or supposed to be held (and unknown to others, of course), by the advance operators drifting about. Just the same then as now, there were "first-class" and "high art" operators, which fact was publicly announced by advertisement in the "leading papers of the day," as well as by handbills posted upon board fences when a new star burst upon the firmament of a fresh town.



After two years of drifting about from village to village, unpacking his one trunk which held the whole establishment, a so-called *gallery* would be opened, sometimes in the parlor of a private residence, sometimes in the ball-room of the "the tavern," once in a Mormon temple (Kirtland, O.). Finally he fetched up at Elyria, where he settled to open a permanent business.

Soon from there he went to Cleveland, and took employment with Charles E. Johnson, one of

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the ablest daguerreotypists of that day. From employee he became proprietor, and has remained in Cleveland ever since, a period of forty years. Ambitious to progress in his art, he quickly adopted all improvements and made the most of them.

He was among the first to make life-size portraits in Ohio, and was the first to introduce negative retouching in America, bringing artists from Europe to do the work. He is as ready to-day as at any time in the past to learn *something new*, and as willing to take it from the least man in his employ as from a college professor when the "least man" has it to impart. We do not acquire all our knowledge from the learned, nor get all our dollars from the rich. Knowledge and dollars are always good when honestly got, whatever their source—is his maxim.

He attended the meeting held in the Cooper Institute in 1867 to consider the advisability of fighting the Cutting patent for the use of bromide in collodion. The fight was had, and the patentee was "licked." A greater point than defeating the unjust claim was, from that meeting, gained in the organization of the National Photographers' Association, from which and its descendant, the Photographers' Association of America, much advance and benefit has come to photography and photographers in this country. Mr. R. has been identified with both associations, and served as President at the first convention of the P. A. of A. at Chicago in 1880. He was the originator of the Daguerre Monument.

He is among the veterans in photography. Although old in the work, he strives to keep bright and young in all that pertains to progress, and has a special dread of old fogyism. At various exhibitions in America and Europe he has been awarded twenty-four prizes.

In connection with his business of photography, for the past twenty years he has an art store and gallery, thought by many to be the finest in the country.

MR. IVES' PHOTOGRAPHS IN THE COLORS OF NATURE.

IN the Editorial Notes of last week, we referred to some photographs in the colors of nature, made by Mr. Frederic E. Ives, of Philadelphia, which were shown us on a recent visit to that city; but could not describe them adequately in a brief editorial note. We have great pleasure, therefore, this week, in reporting to our readers that photographs in the colors of nature have actually been made.

The process is called composite heliochromy by Mr. Ives, and his invention was patented July 22, 1890. But not till recently did Mr. Ives succeed in rendering the application of his principle easy and commercially practicable by his invention of special optical devices.

Mr. Ives' new principle in heliochromy was stated at a meeting of the Franklin Institute, Philadelphia, about three years ago, but on account of various misrepresentations on the part of some who wrote upon the subject at that time, Mr. Ives' claims were not generally understood.

December 19, 1890, he delivered a lecture on "Photography in the Colors of Nature," before the same Institute, which substantially described his process as it is now applied by him. In that lecture he explained how his process consisted in first making three photographs to represent the effect of the object photographed upon the three fundamental color-sensations (in accordance with the theory of color-vision now accepted by all scientists), and then combining these photographs by superposition either by projection with a triple magic lantern or in transparent gelatine prints.

The three negatives are made from the same point of view, by simultaneous and equal exposure, and developed together.

Lantern-slides were then made from the heliochromic negatives, so that by exactly reversing the light and shade they represented the effect of the object upon the respective color sensations. The triple lantern-slide was then projected with a special lantern, each positive with light of the color of the sensation which it represented, in such a manner that the three formed a single picture on the screen, reproducing light and shade and color.

To quote from Mr. Ives' lecture: "One lantern positive, when seen by transparency in red light, reproduces the effect of the object upon the primary red sensation. Another, viewed in the same manner by green light, reproduces the effect of the object upon the green sensation. The third, viewed by blue-violet light, reproduces the effect upon the blue sensation. Evidently, the combination of these three images into one must form a reproduction of the object as seen by the eye, correct in form, color, and light and shade. Such a combination is effected by projecting the three pictures with a triple optical lantern, so that they exactly coincide upon the screen. The result is what we have been led to expect.

"We have here a true solution of the problem of reproducing the colors of nature in a screen picture, dating from November, 1888. Previous to the publication of my new principle, it was assumed

by Cros, Poiree and others, that if the projection method were employed, each picture should be projected by the same kind of rays as those which acted to produce it. In my method, as I have already stated, a picture made by the joint action of red, orange, yellow and yellow-green rays, but chiefly by orange, instead of being projected by a similar mixture of spectrum rays, is projected by red rays only. Similarly, the picture made by orange, yellow, green and green-blue rays is projected by green rays only, and that made by blue-green, blue and violet rays, by blue-violet rays only. That is the true principle, yet nothing of the kind had ever been suggested. The process is capable of giving results which are above criticism, except of that hair-splitting kind which applies also to the ordinary photographic process as a means of reproducing objects which have no color. The most serious objection to this method of solving the problem is that its only commercial value would lie in its application to the illustration of popular lectures.

"Dr. Stolze, who was one of the first to recognize the genuineness of this solution of the problem, doubted if, even in theory, color prints from the same kind of negatives could be made to furnish such a perfect solution. A year ago, I also believed that there were theoretical difficulties in the way of realizing a perfect process with color prints. Only recently have I succeeded in showing what relation the colors of the prints must bear to the colors of light used in projection, in order to perform exactly the same function and, under like conditions of illumination, secure equally perfect fulfillment of theoretical requirements.

"In the projecting method, we build up the luminous image by adding light to light. White light is produced by the mixture of the three colored lights used for projection, and black by their suppression. But when we carry out the process to produce permanent pictures, the paper which may form the basis of the picture is itself white, and it is the shadows that are built up by the superposition of color prints.

"Nevertheless, the color print has exactly the same function to perform as the lantern positive, *i. e.*, to absorb and suppress, by its shading, light affecting one primary color sensation. If we remove out three positives from the lantern, the screen is evenly illuminated with white light. If we then replace the one representing the green sensation, its shadows will absorb the green light, with the result that the screen bears a picture in the complementary color, pink, on a white ground. In the color-print method, we commence with a white surface, which corresponds to the fully illuminated screen, and the shadows of the color-print representing the green sensation, when laid upon the surface, absorb the same kind of rays as the shadows of the positive in the lantern, and with the same result, a pink monochrome picture on a white ground. Superposing the other two color prints upon the first one on paper is like inserting the other two positives in the lantern. This explains why the primary sensations are represented by prints having shades of the complementary (absorbing) color. It is the lights and not the shades of the color prints that represent the effect upon the respective primary color sensation. It is only necessary to use dyes that completely absorb red light but neither green nor blue-violet for the print representing the red sensation, green but neither red nor blue-violet for the green sensation, blue-violet but neither red nor green for the blue sensation, in order to obtain from my negatives a color-print heliochrome that exactly fulfills all theoretical requirements, provided that it be examined in the same kind of white light that we obtain in the screen projections, by mixing red, green, and blue violet rays. The dyes mentioned by me in my paper of November 21st, 1888 (Prussian-blue, aniline-magenta and aniline-yellow), fulfill this requirement, and color print heliochromes made therewith according to my instructions must, therefore, reproduce all the colors of nature under the conditions of illumination just stated."

The process is theoretically perfect, and at the same time entirely practicable for reproducing all the colors of nature, from three negatives. To quote again from Mr. Ives' lecture :

"In order to obtain colors that would appear of exactly the right kind and shade in ordinary white light, it would be necessary to use dyes each of which completely absorbed all light affecting the color sensation which it represented, but no other. The colors would then be correct in ordinary white light, but would appear too dark relatively to the white ground. In order to obtain colors that appear brighter in ordinary white light, dyes may be used which completely absorb only rays that excite chiefly single primary sensations, and other rays in due proportion. The dyes proposed by me also fulfill this requirement, so that even in ordinary white light the degradation of a color is insignificant, except in the greens, where it is noticeable."

Originally, the process was necessarily, by reason of its complication and the necessity for observing almost theoretical accuracy in all its details, too difficult and expensive to permit of general or even

extensive application. But recently, having completely mastered the combinations of sensitive plates and color screens, and other such details, in accordance with his theoretical solution of the problem, Mr. Ives has devoted considerable attention to improving the cameras and lanterns with a view to making the operation of the process simpler and at the same time more truly automatic. The most remarkable of his recent improvements is a camera which makes the three negatives by simultaneous and equal exposure from a single point of view and upon a single plate. This invention Mr. Ives regards as an optical triumph, others having tried to devise such a camera and apparently failed.

There has been a good deal of misapprehension of Mr. Ives' process. It should not be confused with photochromy, which is carried out as chromolithography, and, as Mr. Ives says, is no more like composite heliochromy than the Morse system of telegraphy is like telephony. In photochromy it is only necessary for the photographer to make one negative of the object to be reproduced, and this negative contains a register of form and light and shade only. Composite heliochromy cannot be carried out with less than three negatives, which must contain a register not only of form and light and shade, but of color also. In photochromy an artist is employed to regulate the distribution of colors according to his taste or judgment; in composite heliochromy it is the light itself which regulates their distribution and combination, *automatically*, according to fixed and true scientific principles. Photochromy is an art; composite heliochromy a science.

Composite heliochromy may be said to have grown out of a suggestion made by Henry Collin, Queen Victoria's painting master, in 1865, and afterward improved upon and carried out imperfectly by Ducos, Duhauron and others; but made successful only by Ives' discovery and application of a new principle, and rendered easy and commercially practicable by his invention of special optical devices.

The process which was really discovered about three years ago by Mr. Ives would undoubtedly have been perfected long ere this, had not nearly his whole time been taken up with a necessary business of an entirely different character. Quite recently, however, Mr. Ives has devoted a large portion of his time to this work, and is now preparing to demonstrate the process both here and abroad, and to employ it for obtaining a series of natural color photographs in Europe next summer.

Mr. Ives has been invited to exhibit his photographs on the screen before the Camera Club of New York, and expects to do so. We advise all our readers who possibly can to be present at that meeting.

EDITORIAL NOTES.

COLONEL J. WATERHOUSE lately made some experiments to show the existence of electric currents during the development of the latent image. These experiments are quite new, and very interesting. They demonstrate that the current is intimately connected to the reducing action of the developer, not, of course, to its composition, as it should have been expected *a priori* by the molecular motion which occurs during the reduction of the silver salt and every other chemical phenomena. This reminds us of one of the most beautiful experiments devised by Sir W. R. Grove, to prove the correlation of the physical forces which renders visible, so to say, the luminous action in photography.

When a pencil of light falls on a silver haloid, the light is absorbed, that is, disappears as light, giving rise to a dynamic action which generates heat, electricity, etc., during the dissociation of the elements of the silver compound. It is to demonstrate the transformation of light into the other physical forces that the experiment in question was imagined.

A silver plate, prepared after the manner of Daguerre, is placed in a box filled with distilled water and closed by a glass plate covered with an opaque screen. Between the two plates is a silver wire. The photographic plate is connected to one of the extremities of a galvanometer, the silver wire to one of a Bréguet's thermometer, and each of the other extremities of these apparatus united by a wire. Now, as soon as a ray of light is projected on the daguerrean plate and acts on the silver iodide, the needles of the galvanometer are set in motion, and, light being the initial force, one obtains a chemical action on the sensitive plate, electricity in the wire, heat in the thermometer, and motion in the magnetic needles. Hence in this splendid experiment light has caused a reduction, giving rise to electricity, magnetism, heat, and motion in the atoms of the elements forming the silver salt acted on.

MICA coated with pigmented gelatine is the first novelty of the year. The sheets are sensitized in a solution of potassic bichromate at 2½ per cent. of water, then squeegeed to contact on a talced glass plate free from scratches, where they are allowed

to dry. For use they are stripped off, then exposed from the back to the influence of light under a negative, and the image developed by dissolving the gelatine not acted on, exactly as in the carbon process.* These transparencies are employed for the lantern and window decorations.

We will take occasion to speak of this and other uses of the carbon process in a paper which THE TIMES will soon publish on the applications of photography to the decorative arts, and especially to the *petits métiers*.

THE erythrosine of commerce contains impurities which should be eliminated to render this dye more sensitive to the action of light. For that purpose Messrs. Mylius and Foerster recommend to proceed in the manner following:

The commercial article is first dissolved in aqueous ether. After filtering, one should add caustic potassa, which precipitates the erythrosine as a dark red powder. This is collected on a filter, washed, then dissolved in alcohol at 95 degrees. Finally by evaporation crystals of pure erythrosine are formed, which, when dry, should be kept in the dark.

A PROCESS to make transparencies on paper for the lantern was lately patented in Germany. It is substantially as follows :

A sheet of thin paper is well imbued with creosote oil. The excess being blotted out, the paper is immersed in an alcoholic solution of common rosin, pinned up to dry, and finally coated with a gelatine emulsion.

After exposure, development, etc., the image is varnished with a thin alcoholic varnish.

The paper may be prepared in long strips and mounted on suitable rollers for use in the camera.

A MIXTURE of burnt sugar, burnt sienna and gum-arabic is employed as a backing to prevent halation by English photographers. Burnt sienna is left out by by some operators, but then the caramel should be dark-brown.

Mr. W. E. Debenham, who tested the efficacy of almost every kind of backing, recommends a compound of burnt sugar, gum and india ink.

THE quality of water has a great importance both for alimentation and for chemical use. Only spring water is pure at a hygienic point of view. All the others, without speaking of the mineral and dissolved organic matters, contain the germs of contagious and other diseases.

Water is purified by ebullition, distillation, and, but not effectually, by filtration, which separates only the matters in suspension.*

Ebullition suffices to kill, if not all the living germs but those which it is the most important to destroy : the microbes of typhoid and yellow fevers and those of cholera. The Chinese, from an immemorial time, drink boiled water : the air dissolved in water and driven out at boiling temperature not being necessary for certain digestive functions.

Distilled water is necessarily chemically pure.

Rain-water, unless collected after it has rained for a certain period, is quite impure ; it contains, besides ammoniacal salts, the vegetable and animal germs suspended in the air ; water being their natural vehicle.

Lately, Professor Leeds read before the Chamber of Commerce of Rochester, N. Y., a paper in which he states that water not clear after filtration is clarified by adding per gallon so small a quantity of potassic alum as $\frac{1}{4}$ of a grain, which is also sufficient to prevent the growth of microbes.†

Water so clarified can be used to prepare albumen or gelatine photo compounds and silver solutions to sensitize plain and albumen positive paper. Gold solution must be prepared only with distilled water.

IT seems there are now in England many disciples of Mumler, the martyr (!), whose mediumship was so powerful as to cause spirits to appear materialized but invisible to the profanes, for the purpose of being photographed with their mortal friends—and this in full daylight ! Now they only appear at night or in a dark room.

The *Photographic News* for December 4th contains, on page 833, an article from Mr. James Men on "Spirit Photography," which is well worth reading.

Mumler was sued for selling spirit photographs on false pretenses in 1864 or '65, and the case was decided against him. He then went to work on a wash-out phototypographic process for which he had a patent.

His spirit photographs were very fine, the best we ever have seen, and many of them quite deceiving, if they were not genuine.

THE TIMES should like to hear from the American medium photographers, and also from the sceptics.

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*See the "Photographic Reproduction Processes," by P. C. Duchochois, No. 38 of the Scovill & Adams Photographic Series.

*The filters constructed by alternative layers of charcoal and gravel or of woolens, charcoal and sand, etc., clarify the water but let pass the microscopic eggs of the parasite worms of man, and the microbes and their germs, which even grow and multiply in the different layers of gravel, charcoal, etc.

†See *The Chemical News* for January 1st.

THE STUDIOS OF NEW YORK.

I.

FACING the Bryant Park there is at the corner of Forty-first Street an old two-story country-like wooden house built about the time the Crystal Palace was erected for the International Exhibition of 1853. A few years later a photographic studio was in this house established by the present proprietor, who for thirty years makes a specialty of photographing children.

The studio is not very large, rather small: a reception room at the head of the stairs, two glass rooms *en suite*, and, on the side of the second, the dark and printing rooms. The glass rooms are illuminated by skylights with the classic inclination of 45 degrees, and fitted up with the best apparatus, among which are a 3B and 4B Dallmeyer lenses and a complete outfit to make daguerrean pictures; the reception room is furnished with plain, neat, old-fashioned furnitures, but the walls are adorned by an exhibition of children's photographs which we think to be unique both in this and the old world for the technical and artistic excellence of the pictures. Nothing so pretty as all these little ones with their innocent regard and charming expression, nothing so well composed and harmoniously lighted as the groups. Indeed, it is a wonder—not the perfection of the photowork—but how one can so well succeed in photographing babies in artistic attitudes, and obtain a good, pleasing expression, while most operators are satisfied when perchance they can get a portrait with only one head, half a dozen hands, and I don't know how many feet.

As we were critically examining a frame containing about forty cabinet cards of children of all ages, one especially, a little girl with a white dress graciously posed and brightly lighted—a Reynolds—somebody gave us a gentle tap on the shoulder; it was "the photographer of the little one," our friend Mr. S. A. Thomas. "How do you like my pictures of children—those you were looking at?" said he, smiling after we had conversed purely on personal matters.

"Quite well, indeed! And I see that you work the gelatine process to perfection, as you did the collodion."

"Those, gelatine pictures? No, sir, they are pictures printed many years ago from wet collodion negatives! Of course I do *now* exclusively work the gelatine plates, those of Seed, which I find excellent. Here is a frame filled with pictures printed from gelatine clichés; they are not better than those made with wet collodion plates. In fact the only difference between the two processes only resides in the exposure time. With the latter I had to expose 3 or 4 seconds for my children pictures, while now about half a second—the time to uncap and cap again my Dallmyer's 4B lens, stopped down with X3 diaphragm—suffices. But the development of the invisible image is more difficult on account of the opacity of the film than on collodion plates, which is transparent."

"Quite right, Mr. Thomas, but what collodion did you use to obtain a sensitiveness which allowed the short exposure you speak of?"

"I prepared it myself. I even made the gun cotton, for its quality, which I found to have a great influence on the sensitiveness, greatly varies with the manner of preparing it. I made it at low temperatures by a formula similar to that you published in 1875. Necessarily the silver bath had to be kept in excellent order, and for my babies' pictures I preferred to use a new one. Now, to return to the gelatine process, I develop with the old pyro-ammonia. I can manage it to a point. Of course I have tried, and extensively too, every one of the new developers, hydroquinone, eikonogen, para-amidophenol, and gave them all up."

"Did you ever develop with ferrous oxalate? It is preferred by the majority of the German photographers, and their works are very good, as you are well aware of."

"Certainly I did. It is a good developer. Not as reliable as pyro, I think, but better than the new ones. For diapositives I would not, however, give up pyro-ammonia for it."

The negatives of Mr. Thomas are clear, every one free from yellow fog, of a gray-black color, and not very intense. They are consequently quick printers. The proofs are toned in a gold bath just neutralized by borax. They generally are of a warm black tint, the whites pure, the penumbra well preserved.

Mr. Thomas does not use the aristo paper, nor the bromide paper. His enlargements are made by Willis' primitive platinum process. He also made them for the professional and amateur photographers and for artists. We saw some made about twelve years ago which show no trace of fading; the paper is perfectly white and the image as bright as the day they were printed.

"How do these platino-pictures compare with the silver prints on plain paper?" said Mr. Thomas.

"Favorably, indeed. Now, sir, allow me before I leave you to inquire whether you make clubs!"

"No, sir, no! Rather than to make them I would give up my business! Since thirty-five years I am a photographer, I always endeavored to make good pictures, and I keep my prices up."

"Quite right. Moreover, you must sometimes have a good deal of trouble and your patience taxed when photographing children."

"But no; when a mother cannot anywhere else have the portrait of her child taken, she brings it here, and I take it at once."

"What do you do, Mr. Thomas, to manage him?"

"Nothing!" You have no idea, sir, how keen observers of human nature are by intuition those little ones. At first sight they know who are their friends, and I truly love children. That is my secret."

"I will divulge it to our readers, Mr. Thomas. Good-by."

"Farewell, sir. By the by, I will send to THE TIMES some negatives as a specimen of my babies' photographs. Call again."

And I will.

(*To be continued.*)

THE CHEMISTRY OF PHOTOGRAPHY.

(*Continued from page* 84.)

CHAPTER III.

THEORY OF THE LATENT IMAGE (CONTINUED).

The "Sub-Salt Theory" of the Latent Image.—That great alchemist, Albertus Magnus, who flourished in the thirteenth century, refers to the black hue imparted to the human skin when it was rubbed with caustic silver (silver nitrate). Then his successor, Fabricius, in the middle of the sixteenth century, tells how the miners saw the mineral called "horn silver" (silver chloride) darken on its transfer from the gloomy depths of the mine to sunlight. A century later, Glauber and Robert Boyle mention the darkening of silver compounds when long kept. But Schulze, in 1727, was the first who proved that this blackening was due to the agency of *light;* and his experiments were confirmed by Beccarius, of Turin (about 1750), and by Scheele (1777), the latter chemist being the first to attempt to investigate the nature of the change produced.

Taking silver chloride as an example, we may consider the following facts as certain:

(1) A short exposure to light gives a "latent image," invisible to the eye, but capable of being developed into a visible image.

(2) A longer exposure to light causes the white silver chloride to change color, first to violet and then to brown. This dark-colored product is probably identical with that which forms the latent image. We cannot *see* the molecules of altered silver chloride which form the latent image, any more than we can see a few small leaden shots scattered over a sackful of flour. But the *continued* action of light increases the number of the altered molecules, and they then become visible.

(3) The exposed silver chloride gives off a part or the whole of its chlorine, which can be collected and tested in the usual way.

(4) The action of light upon silver chloride is greatly accelerated by the presence of some substance able to combine readily with chlorine. Such a substance is called a "sensitizer."

(5) In the absence of all sensitizers or chlorine absorbents (as in a vacuum) pure silver chloride is *not* affected by light.

(6) Exposure to the vapors of chlorine, bromine, or any compound which will readily part with these elements, *destroys* the latent image.

The other haloid salts of silver—the bromide and the iodide—when exposed to light are similarly affected to the chloride.

All these considerations help us to believe that the action of light upon these compounds of silver in producing a latent image is of a *chemical* and not of a physical nature.

The point which has to be determined is this: What is the chemical nature of the dark-colored material produced by the agency of light? To this it may seem strange to say that we are not yet able to return a positive answer. Although the whole of the silver salt may appear to be converted by many days' exposure and by frequent shaking into the dark material, yet this change is superficial only. The outside of each tiny particle suffers change; but the inner and greater portion remains unaltered.

The "sub-salt" theory which we have now to describe has in past years received the powerful support of Dr. H. Vogel, and of Captain Abney. The chemistry of the sub-salts of silver is obscure and difficult. If there are such compounds, then one of them should be the sub-oxide of silver, having the formula Ag_4O. The German chemist, Wöhler, believed that he had obtained such a compound in 1839, but the later researches of Newbury, Muthmann, Von Pfordten, Bailey, and Fowler go to show that Wöhler must have been mistaken. Still, the existence of the sub-oxide is not necessary to the latent image theory, which declares that the effect of light upon silver chloride is to reduce it to the state of silver sub-chloride:

$2AgCl$	$=$	Ag_3Cl	$+$	Cl
Silver Chloride	*produces*	Silver Sub-chloride	*and*	Chlorine.

The iodide is similarly reduced to the sub-iodide :

$2AgI$	$=$	Ag_2I	$+$	I
Silver Iodide	*produces*	Silver Sub-iodide	*and*	Iodine.

And the bromide, in its turn, is reduced to sub-bromide :

$2AgBr$	$=$	Ag_2Br	$+$	Br
Silver Bromide	*produces*	Silver Sub-bromide	*and*	Bromine.

It will be seen that this theory fits in nicely with the observed facts. It explains why the presence of a sensitizer is necessary—to absorb the haloid given off under the action of light. In the absence of some such absorbent, we can imagine that light still decomposes the silver salt ; but the liberated halogen at once *recombines* with the sub-salt so formed, bringing it back to its original condition :

Ag_2Cl	$+$	Cl	$=$	$2AgCl$
Silver Subchloride	*and*	Chlorine	*produce*	Silver Chloride.

That such a decomposition and recombination can take place was shown by Morichini, who found that when moist silver chloride was exposed to light in a sealed glass tube, *in vacuo*, it rapidly blackened ; but that the white color was restored when the tube was kept in a dark place for a few days.

Another—and perhaps more feasible—idea is that the light is unable to effect the decomposition, unaided. But when some substance (sensitizer) is present which exerts an attraction upon the haloid, then the *combined* effect of light plus chemical attraction effects a separation or decomposition.

Arguing from analogy we might expect silver sub-chloride to exist ; for the metals, copper and mercury—which have many points of resemblance to silver—both form sub-chlorides. Thus with copper we have—

Copper chloride.....$CuCl_2$
Copper sub-chloride .....$CuCl$

And with mercury—

Mercury chloride (*corrosive sublimate*)..$HgCl_2$
Mercury sub-chloride (*calomel*).....$HgCl$

The metal *thallium*, discovered by Mr. Crookes in 1861, also forms a double series of chlorides—

Thallium trichloride.....$TlCl_3$
Thallium monochloride... ....$TlCl$

But all these are well-known chemical compounds, easily prepared. They are all *white*. Again, if an oxidizing agent be present they cannot be formed. Now we know that the substance which it is proposed to call silver sub-chloride is of a dark color, and is formed even when the silver chloride is exposed to light beneath the surface of such a powerful oxidizing agent as nitric acid. The action of light upon mercury sub-chloride is to decompose it into mercury chloride and metallic mercury ; and not to change it to any lower chloride :

$2HgCl$	$=$	$HgCl_2$	$+$	Hg
Mercury Sub-chloride	*produces*	Mercury Chloride	*and*	Mercury.

The summing-up of the whole matter is, that the evidence clearly proves that silver chloride* loses chlorine on exposure to light ; but that it has not yet been certainly proved that the blackened residue is silver sub-chloride, Ag_2Cl, and nothing else.

We may add that it is a fact well known to plate-makers that spoiled plates (coated with silver bromide in gelatine) when stacked in an open space exposed to light give off an odor which —so far as the sense of smell is concerned—is indistinguishable from that of bromine.

W. Jerome Harrison.

(*To be continued.*)

THE ABSORPTION AND THE PHOTOGRAPHY OF COLORS.

[Translated for THE TIMES from *Comptes Rendus.*]

SINCE a few years the impression of the visible radiations on photographic plates has been sought by the coloration of the plates. It was expected that they would reproduce the maxima of impression for the bands of absorption of the solutions employed. This theory has not always been exactly verified; those maxima of impression are generally more advanced towards the red than the absorption bands of the solutions.† But the absorption of dyed pellicle may not be the same as that of the solution which has served to dye it. The absorption of *colored transparent pellicles* is a fact which can be examined by experiments, and if one employs the pellicle to receive the photographic impression, it will be possible to compare the two phenomena.

Let us first take an uncolored transparent pellicle,‡ and submit the plate to the impression of the spectrum by the method Mr. Lippmann discovered; we observe that the impression is very slowly produced. In this experiment no colored screen is used.

This slowness disappears when the same plates are dyed by coloring matters giving sharp bands

*And the chloride stands as a type also for the bromide and the iodide.

† Chs. Fabre. Traité encyclopédique de Photographie, vol. ii., p. 328.

‡ These experiments were made in the laboratory of physics in the College of Grenoble.

of absorption. After development and drying the plate presents colored bands.

The photographic impression is produced by the radiations absorbed, for if one interposes on the passage of light a pellicle of the same nature as that of the sensitive plate, colored with the same substance but deeper, the photographic impression does not take place.

From the exact concordance between the absorption and the photographic impression it results that, in the experiment of Mr. Lippmann, if one desires to impress a given radiation, it suffices to select a colored sensitive plate absorbing this radiation, and then remove any colored screen anterior to the plate.

For example, a pellicle dyed with Victoria green absorbs the orange-red; without colored anterior screen a sensitive plate dyed with this green is impressed only for the orange-red, and we see this color on the exterior side of the pellicle. Or, again, a pellicle colored with cyanine absorbs the orange-yellow and the green; by itself the plate colored with cyanine is impressed for those radiations which we see on the exterior side of the pellicle.

Let us remark this fact that one sees the radiations absorbed on the side of the pellicle which, during the exposure, has been in contact with the mirror of mercury.

Now let us turn the plate over and examine by reflection the glass side. We still see the colors as brilliant as those of the other side, but they are entirely different. They seem, even, at any point, to be the complementary of those seen on the corresponding points on the other side. Hence, there is a dissymmetry in the disposition of the reflecting surfaces when one looks at one or the other side.

How should we account for this double coloration in the elementary theory of the colored rays? Let us first take the coloration seen on the exterior side, and, to point out precisely, let us suppose that the plate has been colored with Victoria-green, which absorbs the red.

During the exposure time the exterior side in contact to the mirror of mercury is a node of vibration; the first loop is distant of $\frac{\lambda}{4}$ from the red, the second of $\frac{3\lambda}{4}$, the third of $\frac{5\lambda}{4}$, etc. Let us admit for an instant that planes of photographic reduction are situated in the loops of vibration,* the thin laminæ between the planes of reduction have an increasing thickness equal to the successive odd multiples of $\frac{\lambda}{4}$ of the red; hence, this color will be produced when the plate is lighted by the white light.

This theory admits that the light reflected on the very surface of the pellicle interferes with each of the planes of reduction, and, in fact, the surface of the pellicles present an excellent plane of reflection. If the planes of reduction were formed on the nodes of vibration, one would have, then, thin laminæ, whose thickness would be the even multiples of $\frac{\lambda}{4}$ of the red, and the color would be missing in the reflected light; the band appears green, which is contrary to the experiment.

Let us consider now the coloration by reflection on the glass surface; they are more difficult to interpret. As said before, they represent the appearance of the precedent complementary colors.

For example, the plates colored with Victoria green give red on the pellicle side and green on the other one; cyanine, which gives orange, yellow, and green on the pellicle sides, presents green, blue and violet-red on the opposite side.

This special character would be explained quite well if one admitted that, during the impression, the surface pellicle-glass always corresponded to the loop of vibration, which would be the same as to assimilate the pellicle to a closed sonorous pipe. It is also possible that the index of pellicle, which is constituted by a mixture of gelatine and albumen, be very sensibly that of glass, in which case the surface pellicle-glass would not intervene and the light directly strike the planes of vibration. This last hypothesis is to be verified.*

The concordance of the absorption and the photographic reduction has also led one to conclude that the use of the spectroscope is not necessary to obtain plates with thin lamina.

If a pencil of *white light* is projected on a colored plate in contact with the mercuric mirror, there is interference; only the absorbed radiation impress the sensitive matter, the others are transmitted as they go and return (*à l'aller et au retour*): they are without effect. The result of the impression is a coloration which is the synthesis of those which one would have obtained by employing the spectroscope. The experiment has been made with Victoria green: one sees on the exterior side, the red absorbed. Cyanine gives on this side a yellow green coloration.

On the glass-side of these plates one sees, as before, colors which appear as complementary of the other side, so that, by reflection on the glass-side, every thing takes place as if the white light had fixed the color of the pellicle. Victoria green

*See a recent discussion which took place at the Academie des Sciences, about the experiments of Mr. Wiener.

* The index of the pellicle is equal to 1.5.

gives green on this side, cyanine produces its violet blue color.

Labatut.

Notes and News.

J. N. Thompson, photographer, of Davidson, N. C., is dead.

The Firm of Rochengatter & Dillon has dissolved partnership. A. W. Rochengatter continues the business.

James M. Small, of Small & Sivney, photographers, of Milwaukee, recently died.

The Poem "Lucile," by Owen Meredith, has been selected by the Executive Committee of the P. A. of A. as a subject for the grand competition of the next P. A. of A. Convention.

The Stuber Dry-Plate Company has received its new building from the contractor, and is now placing the machinery in it preparatory to manufacturing the Stuber dry-plates.

Mr. W. G. Stuber, President of the Company, writes, under date of February 9th, that they will shortly be ready to place their plates upon the market.

The Regular Annual Executive Committee of the P. A. of A. meeting was held in January at Chicago. Vice-President Place, Treasurer Carlisle and Secretary Heimberger being the only members present. Mr. Entrekin sent his letter of resignation, and Mr. Stuart telegraphed that he could not be present. Mr. Place acted as President. It was decided to hold the next convention in the third week in July, 1893.

"An Error."—Dr. G. M. Carlisle, Treasurer of the P. A. of A., writes to the editor of THE PHOTOGRAPHIC TIMES, as follows: "In glancing over my report, as published in THE TIMES, I observe an error which may cause some inquiry from the members of the P. A. of A. It charges me with having received $422.32 of the Medal fund, whereas the $422.32 was my commission of 10 per cent on the gross receipts exclusive of the Memorial fund."

Photography in Cold Weather.—Reference has been made in THE TIMES to the care that should be used by amateurs in their winter work, owing to the influence of cold in development of plates. THE PHOTOGRAPHIC TIMES in its latest issue, commenting upon the same subject, advises that the developing solution be kept in winter at the normal summer temperature of water, from 60 to 70 deg. Fahr.

The New Star in Auriga.—A large number of photographs of the region including the new star near Chi Auriga, recently discovered in Scotland, were taken at Harvard College observatory from November 3, 1885, to December 1, 1891. The star does not appear on any of these photographs. Twenty subsequent photographs of the same region show that the star was already bright on December 10, and that its brightness increased until December 20, after which it became gradually fainter. It was still bright, however, February 3, when the announcement of its discovery was made.

Photographs taken at Harvard show that the spectrum is unique and unlike that of an ordinary variable star.

The Bridgeton Camera Society, of Bridgeton, N. J., entered upon its third year last Wednesday, and celebrated the event by a public exhibition of photographs and reception at its rooms Nos. 48 and 50 Commerce Street. No less than six hundred persons were present. About twelve hundred photographs were exhibited. Intense interest exists among the members and the Society is in a highly prosperous condition. The following officers have been chosen for the year: President, Henry A. Janvier; Vice-President, Geo. Hampton; Secretary, Hugh L. Reeves; Treasurer, Sydney E. Bowen; Executive Committee, H. W. Scull, E. B. Garrison, F. M. McGear, Jr.

The New York Camera Club gave another exhibition of lantern-slides at the rooms of the club, 314 Fifth Avenue, on the evening of January 25th, which was largely attended and proved very interesting. The work was entirely by the members of the Camera Club, and included slides of a number of pictures which were accepted at the Vienna Exhibition, the most notable of which were by Miss Mary C. Martin, Mr. James L. Breese and Mr. Harry B. Reid.

Other exhibitors were: Samuel W. Bridgham, Miss Frances V. Stevens, Mr. William Bunker, Mr. Henry A. Blythe, Mr. William A. Fraser, Mr. Franklin Harper and Mr. David Williams.

Harry B. Reid, secretary of the club, was lecturer for the occasion, and with his happy and pertinent remarks, and his little "asides," he kept the audience in good humor. Some of the work shown was superb. In the selection of subject, delicacy in handling, and in the richness of tone they certainly showed the keenest artistic appreciation.

Photographing the Internal Organs.—A German inventor has devised an ingenious camera for taking photographs of the internal organs of human beings and beasts. Its form is described as follows: Contained in an india-rubber tube is a small cylindrical camera enclosed in a cylindrical case provided with two hemispherical shutters. In front of the lens are two very small incandescent lamps. The wires to these and a short pipe from the camera are carried in the outside incasing tube. A battery for the lamps and a pneumatic ball to operate the camera complete the outfit. The camera is provided with a sensitive plate, and, when the apparatus is in use, a simple pressure on the pneumatic ball drives the camera forward in the incasing cylinder, and at the same instant makes the contact for the electric lamps, opening the shutters at the same time. By removing the pressure upon the ball, the camera returns to its place, the lamps go out and the shutters close. In a number of cases in which this curious instrument is said to have been employed, the results have been quite satisfactory.

A Substitute for Glass.—A glass manufacturer of Vienna, Austria, claims that he has produced a new substitute for glass. In an account of his invention he says: "I dissolve from four to eight parts of collodion wool in about one hundred parts, by weight, of ether or alcohol, or acetic ether, and with this I intimately combine from 2 to 4 per cent. of castor oil or other non-resinous oil, and 4 to 10 per cent. of resin or Canada balsam (soft resin). The compound, when poured upon a glass plate and subjected to the drying action of a current of air of about 50 deg. Centigrade, solidifies in a comparatively short time into a transparent glass-like sheet or plate, the thickness of which may be regulated as required. The sheet or plate so obtained has substantially the same properties as glass, as it will resist the action of salts and alkalies and of dilute acids, and, like glass, is transparent and has no smell. On the other hand, it has the advantage of being pliable or flexible, and infrangible to a great degree, while its inflammability is much less than that of the collodion substitutes. The compound, as will be readily comprehended, is of such a nature that any desired color, or shade of color, may be imparted to it by the mixture of the necessary pigment. The pigments should be soluble in the solvent used in the preparation of the compound, if incorporated therewith; but the color may be imparted to the substance by surface application, aniline dyes or colors being employed, so that the sheets or plates may be used in lieu of stained glass. The material may also be ornamented by printing any desired design thereon."

Dainty Portraits of Unwieldy Women.—A London photographer has got an idea which should be worth a huge fortune. He noticed that when he got a lady sitter with a pair of small and elegant feet she generally liked to place herself so that her fairy-like supports were just visible, while the lady with the large, misshapen hoofs and the bulky hoof-cases keep her feet out of sight every time. From this he inferred that the latter person would much prefer to have two small and lovable trotters also, and if she had them she would want to display them; and then he conceived the inspiration of keeping feet on hand and supplying them to customers who needed them. He has a dozen pairs of them—small wooden feet, with adorable boots on them, and attached to each of them is about eight inches of attractive leg clothed in neat stocking and with a hook about half-way up. The lady with the generous extremities is planted in a chair with her massive limbs and copious boots hidden as far back as they can go without dislocating her knees, and then the artificial legs are carefully hooked on to the inner hem of her dress. Consequently she looks like a person reclining in an easy attitude, with her feet exposed by accident; and if she can stand the strain—which is something awful—the resulting photo is a beautiful thing to look at. If she can't stand the strain, her real feet come forward just in time to keep the unnatural attitude from wrenching her profuse joints asunder, and then she appears in the negative as a quadruped. Sometimes her limbs have to be tied back with ropes, to keep her steady, and her smile is the happy smile of one who sits on a hot stove. Still, the artificial feet get there every time.—*Fashion Bazar.*

The Special Bronze Medal of Superiority, awarded by the American Institute to The Scovill & Adams Co. for photographic cameras and apparatus, has been delivered; and it has been added to the large collection of similar medals awarded by this and other institutions to The Scovill & Adams Co.

Mr. Punch, in his excellent Almanac for 1892, gives the following definitions of a photograph:

"(*a.*) Though a man who always says 'No' cannot be considered a good fellow, yet a photograph may be described as a proof of *cameraderie*, based on nothing but negatives.

"(*b.*) The flattery of a human face by a celestial body.

"(*c.*) Purchasable immortality, warranted to fade, in several sizes.

"(*d.*) The final stage in a struggle with a cheerful expression.

"(*e.*) An image which, in proportion as it offends one's vanity, may be counted upon to delight one's friends."

This is all very funny, and very clever too; but photographs nowadays are not "warranted to fade." We have changed all that.

The New York Warerooms of the Blair Camera Company have been removed to 451 Broadway. Mr. J. E. Howland remains Manager of the New York Branch.

Photographic Societies.

PORTLAND CAMERA CLUB, OF PORTLAND, MAINE.

THE second annual meeting of the club was held at the club rooms in Art Club Building, February 2d, 1892.

The attendance was large, and the usual enthusiasm manifested at an annual meeting quite apparent.

The meeting was called to order by the President, Mr. F. H. Little, and after the various reports showing the prosperous condition of the Society were read the following officers for ensuing year were elected:

President, F. M. Lawrence; Vice-President, Stanley P. Warren, M. D.; Secretary, Frederic S. Bullard; Treasurer, Wm. Sweat; Executive Committee, President F. M. Lawrence, Chairman ex-officio, Nathan Clifford, Philip G. Brown, F. H. Little, Warren C. King.

The meeting then adjourned to look at a display of slides from the Camera Clubs of Lynn and Medford, Mass.

The Lynn set proved excellent, and there were many beautiful slides. The following were selected as the five best of Lynn:

Nos. 11, 27, 32, 35, 39.

Then followed the Mystic Club of Medford. These slides illustrated "The Historical Ride of Paul Revere," and considering the difficulty of putting the right thing in its proper place in work of this kind was a credit to the management. The following were selected as best considering the subject, work, etc.:

Nos. 23, 27, 31, 35, 48.

The sets from Detroit and Buffalo, having been delayed, were advertised for February 9th, when the sets from Providence and Hartford will be shown also.

The members of the Portland Club are preparing for an exhibition of pictures, and a committee has the matter in charge. The club is evenly divided on the subject of

"printing papers" and "developers," viz: the good-enough element, and the try-everything.

Bromide work occupies the attention of a certain section, and if all promises are fulfilled the club may be obliged to utilize extra hanging space.

This club is very favorably situated, and being a section of the Portland Society of Art, occupies the rooms of said society and takes particular interest in its management.

Portland offers peculiarly favorable advantages for the amateur, and the views in the vicinity are not equaled by any other city of this country, when one takes into consideration their scope and diversity. Within a radius of ten miles one gets the surf, meadow, mountain, and their various modifications.

The Editorial Table.

The Author's Copy of "Mosaics" for 1892 is a very handsome volume. It is substantially bound in full morocco with gilt ornamentations and lettering.

"Child Beauty" is the title of an article by Geo. G. Rockwood, which occupies the leading place in both *Wilson's Photographic Magazine* and *The Photo-American* for February; and many of the illustrations are also the same in both periodicals.

Dr. W. N. Sherman, of Merced, Cal., has sent us a photomicrogram of blood corpuscles, accompanied by a letter in praise of Carbutt's orthochromatic plates, used by him exclusively in his interesting researches, and of which we extract the following:

"I enclose a photomicrograph of blood, showing the superior excellence of your orthochromatic plates. The blood corpuscles are from a case of pernicious anæmia and are double stained; the small red corpuscles with eosine (red) and the large leucocytes green and their nuclei dark-green.

"The magnification is X 600, no screen was used and the image projected directly from objective by lamplight. I have other most excellent negatives, where the use of the common plate would have failed to record the colors."

The description of the picture hardly does justice to it. It is beautifully sharp and the detail is beyond anything we have ever seen in this line of work, depicting lights and shadows of every individual corpuscle with wonderful precision.

We are glad to have again occasion to record the efficacy of the Carbutt color-sensitive plate.

Record of Photographic Patents.

468,456. Plate-Holder. William H. Lewis, Huntington, N. Y.

TRADE MARKS.

20,706. Photographic Dry-Plates. Harvard Dry-Plate Company.

20,707. Photographic Dry-Plates. Harvard Dry-Plate Company.

Queries and Answers.

214 N. S. R. wishes to know what is the sensitometer number of the plates used by Professor Burton for exposing according to his table of comparative exposure published in our "Annual."

214 *Answer.*—We cannot say, but presume that Mr. Burton employs the "Ilford" medium as a standard. Their sensitiveness is nearly equal to the B16 plates of Carbutt.

215 W. B. S. says: "I have a silver bath containing nitrate of ammonia. Will evaporating and fusing take out all the albumen and nitrate of ammonia and leave the pure silver?"

215 *Answer.*—Nearly so. At the fusing temperature albumen is decomposed and ammonium nitrate evaporated.

216 JOHN H. S., of Indiana, has sent us a tintype picture made on gelatine plate which is everything but good.

The only advice we can give is to take a better focus, expose less time, and not to overdevelop.

217 L. J. H. writes: "(1) I use eiko-cum-hydro developer according to formula in your 'Annual' for '92, p. 29, but cannot get density. If I leave the plate too long it seems to fog. (2) What is a good toning bath for fresh paper (albumen) to obtain purple black tones? (3) What are iridium prints? Where are the chemicals for sale?"

217 *Answer.*—(1) Add more of *A* when the details have been brought on by the diluted solution. To keep the plate clear add a few drops of a 1:10 potassium bromide solution towards the end of the operation. (2) We refer you to the "American Annual of Photography" for 1892. See Nos. 34, 39 and 90 of the standard formulas; pages 268 and 269. (3) Iridium terchloride is employed, generally in very slightly acid solutions, to tone silver prints. It costs $1.50 per gram, which is equal to 15⅝ grains. You can procure it through the Scovill & Adams Co.

218 W. W., of Westchester, Pa., writes for information as to the best finish for photographs.

218 *Answer.*—The finish of the photographs should be harmonized with the character of the subject, and of course varies with the taste of the photographer. Some photographers prefer the higher gloss on their photographs, while others and an increasing number incline to the plain surface.

219 CHARLES M.—What is the chemical action of bromides when added to the developer for the purpose of restraining? and how do citrates and borates act unddr the same circumstances?

219 *Answer.*—The chemical action of bromides used as restrainers has not yet been definitely determined upon, but it seems they form with the bromide of silver a double salt more stable and not as easily reducible as the pure bromide of silver.

Citrates and borates, very powerful restrainers, act quite different from the bromides. They prevent details to develop and promote the building up of density, for which reason they may be well employed for the developing of black and white negatives. Bromides, contrarily, allow details to appear and at the same time help to increase general density.

THE PHOTOGRAPHIC TIMES.

AN ILLUSTRATED WEEKLY JOURNAL DEVOTED TO THE ART, SCIENCE AND ADVANCEMENT OF PHOTOGRAPHY.

Issued every Friday.

W. I. LINCOLN ADAMS, Editor.

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" " six months 2 50
" " one month's trial 50

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Size of advertising pages, 6½x9¼ inches; outside size, 8½x11¾ inches.
One page, each insertion $20 00
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Quarter page, per insertion 5 00
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Copy for advertisements must be received at office one week in advance of the day of publication. Advertisers receive a copy of the journal free, to certify the correctness of the insertion.
All literary contributions, correspondence, "Queries," etc., should be addressed to THE EDITOR; all advertising matter to the Publishers,

THE PHOTOGRAPHIC TIMES PUBLISHING ASSOCIATION,
423 Broome Street, New York.

Commercial Intelligence.

A LETTER OF TESTIMONY.

GENTLEMEN: Some time ago I bought one of your Acme Burnishers and want to tell you how much pleased with the instrument I am. It is more than satisfactory. I cannot conceive of a Burnisher better adapted to amateur purposes, and the price places it within the reach of all.

Yours truly,
G. M. S., Potsdam, N. Y.

THE SCOVILL & ADAMS CO.,
423 Broome St., New York.

The word "Racks" should have been inserted, of course, in the title of the note in our last issue pertaining to the new wooden racks for holding lantern-slides.

"Quite in Love."—"I have one of your 'Knack' cameras, and I am quite in love with it," writes E. G. TREMAIN, Brooklyn, N. Y.

"I read THE PHOTOGRAPHIC TIMES carefully from front to back weekly," writes W. H. Walmsley, the well-known photographic merchant of Philadelphia.

"It is beautifully illustrated (The Annual), and strikes one as a work of art, as well as one of the standard works on profession of photography."—H. MCMICHAEL, ex-President of P. A. of A.

What H. P. Robinson Thinks of the "Annual."—"What a splendid volume the 'Annual' makes this year! You must not let photographers see the splendidly bound copies you sent to contributors or you will be over-done with 'copy' next year!"

"The 'Favorite' camera and outfit received O. K. It is a '*dandy*,' and the view already taken with it proves the machine a good one," writes E. M. Addis, of Great Barrington, Mass., in regard to the Scovill "Favorite" camera.

THE 5x7 HENRY CLAY STEREOSCOPIC CAMERA FOR TRIPOD AND HAND USE.

It is commonly known that of all pictures, those which are arranged to give the stereoscopic effect when viewed in a stereoscope, convey the true impression of perspective and solidity. It seems strange, indeed, that of the myriads of instantaneous pictures made, so few are taken with reference to their future use in connection with the stereoscope, *for it is only by that means that the idea of perspective*

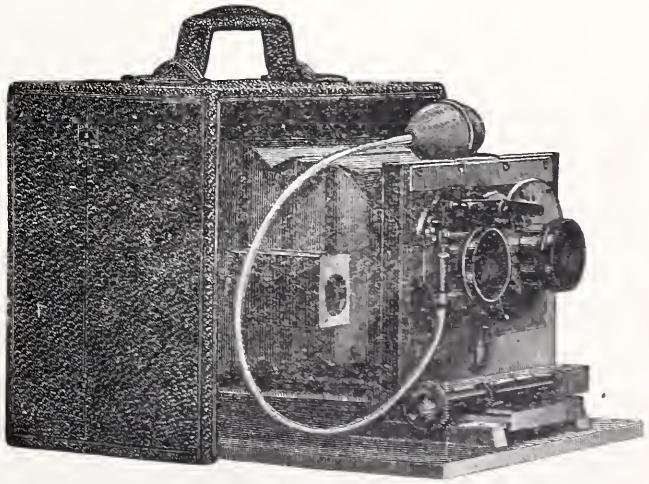


and solidity can be conveyed. We can only assign as the reason the present almost universal use of hand cameras, and that none of them have, up to this time, been arranged for stereoscopic pictures.

There is a much over-worked phrase—"the long felt want," but we think that just that, literally, will be met by the new hand camera which the American Optical Company have just finished.

The first illustration shows one of these cameras closed, and you will observe there is no external opening for finder, lens or anything to indicate that the leather-covered case contains the appliances which go to make up an instantaneous camera.

This camera measures eight inches high, nine inches long and five inches wide; its weight is about five pounds. It has a screw plate underneath, so that it may be used with a tripod. It has a door in the back of the case, and through that opening the image thrown by the lenses may be seen on the ground-glass focusing screen.



The second illustration shows the appearance of the camera when open. The pair of Optimus Lenses is fitted with a triplex stereoscopic shutter with pneumatic release, made by the Prosch Manufacturing Company.

The camera is furnished with a focusing scale and a

reversible finder. Either half of the stereo. negatives when cut in two are of a size suitable for making lantern slides from.

This camera may also be used to take a single picture of the size of the ground-glass focusing screen (5x7 inches), either vertical or horizontal. In the former case the reversible finder comes into use. The septum which divides the camera inside is arranged so that it may be easily taken out, the stereo. lenses are mounted on a removable front, and an extra front is furnished on which may be placed any lens of not over seven and a half inches equivalent focus.

Price with a pair of Optimus Lenses and Prosch Stereoscopic Shutter with Pneumatic Release..$75 00

This camera can also be made with vertical sliding and swing front. By means of the former the proportion of sky and foreground may be adjusted; the latter permits the taking of subjects which may be either above or below the level of the camera and still preserve the lines vertical.

Price with a pair of Optimus Lenses and Prosch Stereoscopic Shutter with Pneumatic Release, and with vertical sliding and swing front $80 00

A 5x7 Roll Holder for Transparent Films can be furnished with either of the above forms of this Camera for $15.00 additional. This addition would make the case about two inches wider and ¼ inch higher.

THE SCOVILL & ADAMS CO.,
423 Broome Street, NEW YORK.

Business Notices.

FOR SALE.—A rare opportunity. The leading photograph gallery in a city of 36,000. Fully equipped for all kinds of work, and having 38,000 negatives. Receipts for 1891, $7,100; duplicate work, $1,000; will be sold cheap. Half of the amount may remain on mortgage at 6 per cent. For particulars address W. H. ROBEY, care Horgan, Robey & Co:, 34 Bromfield St., Boston.

WANTED.—A copy of THE PHOTOGRAPHIC TIMES for November 13th, 1891. Will pay full price (15 cents). Address "Complete File," care THE PHOTOGRAPHIC TIMES.

IMPROVED HAND CAMERAS.—The Hetherington Magazine Camera for 12 plates or cut films without reloading. None better. Price $45.00.
C. M. BROCKWAY,
33 Worth St., New York.

A RAPID RECTILINEAR LENS of the Bausch & Lomb make, covering instantaneously a 5x8 plate, for sale. $12.00, C. O. D. Address "LENS," care THE PHOTOGRAPHIC TIMES.

THE FINEST Platinotype Solar Enlargements and contact prints, in black and sepia, are made by
THE PLATINOTYPE CO.,
39 South 10th St., Philadelphia.
Send for price lists.

THE UNDERSIGNED has a few 6x5 Dallmeyer Rapid Rectilinear Lenses which he will sell for 20 per cent. from list prices. These lenses are a late importation and are all warranted. Address "TOURIST,"
care The Scovill & Adams Co.

THE '89 ANNUAL.—I have a paper-covered copy of *The Photographic Times Annual* for 1889, in good condition, which I will sell for one dollar ($1.00). ANNUAL, care THE PHOTOGRAPHIC TIMES.

FOR SALE CHEAP.—I will sell my Bridges' Photographic Flash Light Diffuser, which cost me $3.50, for $2.75, as I am going out of the business. The Diffuser has never been used. It is exactly as good as new. Address M., care THE PHOTOGRAPHIC TIMES.

WANTED.—Vols. 8, 10, 12, 13 and 19 of THE PHOTOGRAPHIC TIMES, bound or unbound. THE PHOTOGRAPHIC TIMES PUBLISHING ASSOCIATION.

A BARGAIN.—A No. 6 Gray's Periscope Lens in first-class condition. List price, $22.00. Will sell for $15.00. Spot cash. Address LENS BARGAIN, care THE PHOTOGRAPHIC TIMES.

FOR SALE.—The old established gallery (established 37 years) in one of the liveliest young cities in Connecticut. Fine location. Fully equipped for all work to 14x17. Refurnished new throughout in 1890. Cabinets $3.00 and $4.00 per dozen. Rent moderate. For further particulars address BENJ. FRENCH & CO.,
319 Washington St., Boston, Mass.

THE ROCHESTER DETECTIVE CAMERA for plates, cut films or roll-holders. Prices, $18.00 to $50.00. Mail orders promptly filled.
C. M. BROCKWAY, 33 Worth St., New York.

PEACOCK FEATHERS for decorating. Send for dealers' prices. W. J. STANTON,
Box T, Lyndon, Vt.

NO FUMING, NO BLISTERS.—Experiment with all the "papers" advertised, and learn. But when you want to make choice, spotless prints use WISSAHICKON SENSITIZED ALBUMEN PAPER. Tone it in compound bath and squeegee on ferro plate, if you like. Send 2 cent stamp for 4x5 sample to JOHN HAWORTH,
641 Arch Street, Philadelphia.

"THE PHOTOGRAPHERS' BOOK OF PRACTICAL FORMULÆ."—In order to make way for the SECOND EDITION of this popular book we make the following prices on those now in stock: Paper covers, 30 cents each; cloth, 60 cents each. Never before has a book of such great value been offered for so little money.
R. H. MORAN,
396 Broome Street, New York.

A SURE WAY TO PREVENT BLISTERS.—Use Haworth's Sensitized Paper. It won't blister. Spalding has it, so have Obrig Camera Co., and Z. T. Benson.
JOHN HAWORTH, Manufacturer, Phila.

LANGILL. 10 East 14th Street, makes all kinds of outdoor negatives. Portrait photographers will do well to consult him when such is required. First prize for Architectural photographs, P. A. of A.

THE finest-fitted Dark-Rooms in the United States are open for the accommodation of Amateurs, at 122 W. 36th Street. DARLING, Photographer.

WANTED.—Choice stereoscopic negatives from al parts of the world. Address F. F. BRAILLARD, JR.,
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FOR SALE.—At specially low prices, a fine lot of Chance's Optical Glass, both Crown and Flint, which was imported for a manufacturer who has retired from business. For further particulars address
Messrs. CHARLES COOPER & CO.,
194 Worth St., New York City.

FOR SALE.—A copy of "The American Annual of Photography" for 1889, a few leaves of the standard formulas and all the advertisements wanting, will be sold for $1.00. Apply to
CHAS. EHRMANN, of PHOTOGRAPHIC TIMES.

OWING TO
DISSOLUTION OF PARTNERSHIP

And Removal, we offer for February only OUR ENTIRE STOCK OF AJAX, LECLAIR, ECLIPSE AND FAIRY LENSES AT COST.

"AJAX."	REDUCED FROM	PRESENT PRICE.
4 x 5	$9 60	to $6 00
5 x 8	11 20	" 7 00
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Photographers can increase their business during the holidays by advocating the Platinotype.

Send 30 cents for a specimen print, portrait or landscape, on our new heavy India Tint Mounts.

WILLIS & CLEMENTS, Patentees,
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S. P. C. EIKOQUINOL DEVELOPER.—This "ne plus ultra" developer for timed and instantaneous exposures, lantern slides and all other kinds of transparencies, photo-mechanical work and bromide paper prints is now in stock and for sale at 35 cents per bottle of 8 ounces. No other developer is now used by the members of Chautauqua School of Photography; no other has attained to equally fine results.

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THE PHOTOGRAPHIC TIMES PUBLISHING ASSOCIATION,
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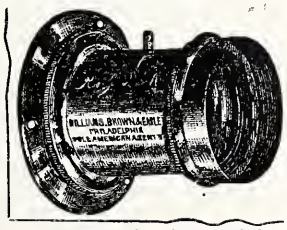
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If you are thinking of Purchasing a PHOTOGRAPHIC CAMERA do not fail to write us for prices. If you wish to get SUPERB RESULTS get a

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Mr. JNO. C. HEMMENT, Photographer to *Frank Leslie's*, states: "It is the only lens which will do my work."

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PHOTOGRAPHIC SUPPLIES AND PRINTING.

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Correspondence Solicited.

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They can be loaded in the *daylight*, and we give full and careful personal instructions gratis. We develop, print and mount in albums at Eastman's prices. Only *first-class* work turned out. THE OBRIG CAMERA CO.,
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"Nothing Succeeds Like Success."

In this connection it is natural to think of ORTHOSCOPE LENSES. There must be some reason why they are selling so rapidly. We think we know why; if you don't, perhaps you will be interested to find out. Other people are finding out, and somehow after they have tried a lens they won't let us have it back. Strange, isn't it? The list which tells about them can be had for the asking.

THOS. H. McCOLLIN & CO.,
PHOTOGRAPHERS' SUPPLIES,
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Artist and Designer.

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New Profile Accessories of Columns Cabinets, Cottages, etc., etc., etc.

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Three Doors East of Broadway.

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Applies any dilute liquid pigment by a jet of air. Work is far more rapid than crayon and is equally artistic. Adopted by hundreds of the best crayon and water-color portrait artists in the United States.

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THE DEVELOPING AGENT OF THE FUTURE.
With para-amidophenol there is no staining of the film as with eikonogen and hydrochinon when development is prolonged, absolute transparency and opacity is secured, and the time of exposure reduced about 30 per cent. without injury to half-tones and middle-tints.

FORMULA.

Para-amidophenol hydrochlorate.....	2 drachms
Granulated carbonate of sodium.....	10 drachms
Granulated sulphite of sodium.....	10 drachms
Water	32 fluid ounces

Heat the water to 150 deg. F.; dissolve first the sulphite of sodium, then the para-amidophenol, and finally the carbonate of sodium; filter, and keep in well-stoppered bottles. With ordinary caution this solution will keep indefinitely.
PARA-AMIDOPHENOL HYDROCHLORATE
IS NOW FOR SALE,
PUT UP IN ONE-HALF OUNCE BOTTLES,
for $1.00 per bottle.
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DRY PLATES
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Uniform, Reliable, Splendid Keeping Qualities,

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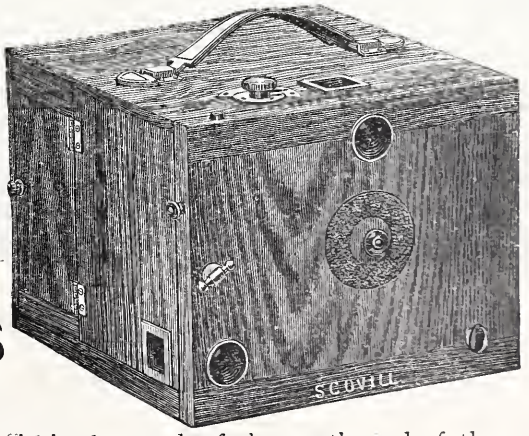
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DETECTIVE CAMERAS

TO MEET the demand for a cheap Detective Camera within the reach of the youth, and of those who want to make but a moderate investment in photographic appliances, we have introduced the KNACK CAMERA, which is certainly lighter and more compact than any other cheap detective camera in the market, and what is still more important, has a much more expensive and more perfect lens.

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The whole front of this camera is hinged, which is a great convenience. The camera has a Recessed Finder, an Instantaneous and Time Shutter with Speed Regulator, Cap for timed exposures, and one Double Dry Plate Holder.

	PRICE.
No. 1 4x5 Antique Oak, Knack Camera, -	**$15.00**
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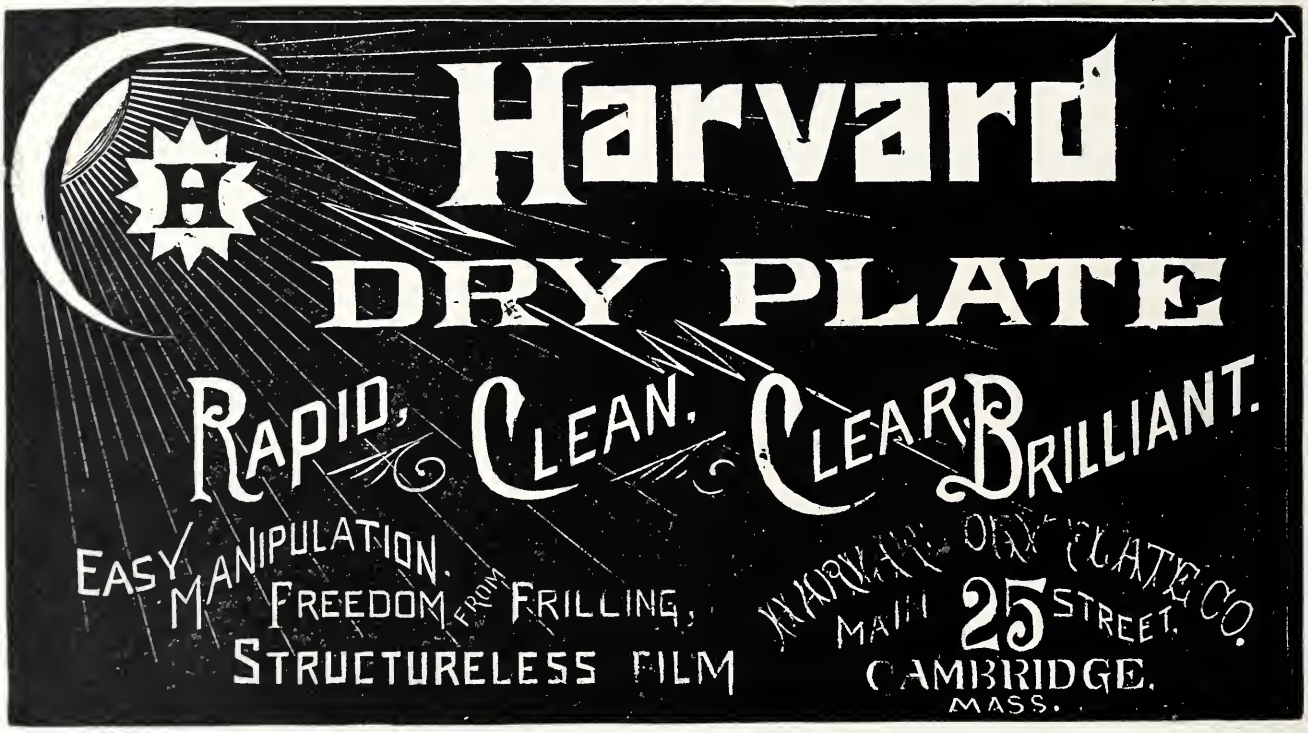
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No. of Lens.	Diameter	Size of Plate.	Equivalent Focus.	Price.	
0..1	inch...3¼x4¼	inch...	2½ inch...each,	$20.00	
2..1	" ...4 x 5	" ...	3½ " ... "	25.00	
3..1	" ...4¼x 6½	" ...	4½ " ... "	25.00	These 5 sizes will
4..1	" ...5 x 8	" ...	5½ " ... "	25.00	fit into 1 flange.
5..1	" ...6½x 8½	" ...	6½ " ... "	25.00	
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BEFORE YOU PURCHASE ANY OTHER.

It is the most unique, elegant and attractive Camera ever produced. Suitable for ladies or gentlemen. Can be used as a hand camera or on a tripod.

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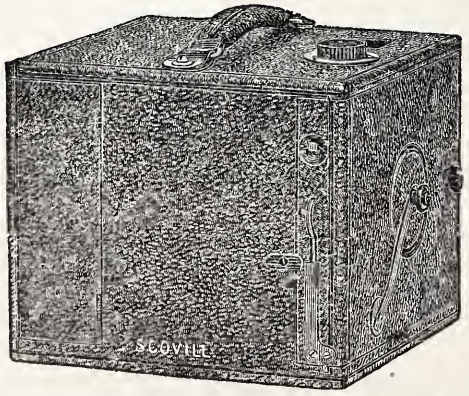
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Timed and Instantaneous Photographs. This is the only Detective Camera which is as well adapted for making timed views as for photographing quickly moving objects. The negatives produced are of such sharpness that they may be enlarged to almost any size, It is

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The Recessed Finder shows *the same image* as is included on the ground-glass, though diminished in size. Without this accurate finder, one cannot be sure of what is taken in or left out of an instantaneous photograph.

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PERMANENT, RAPID, SIMPLE, CHEAP.

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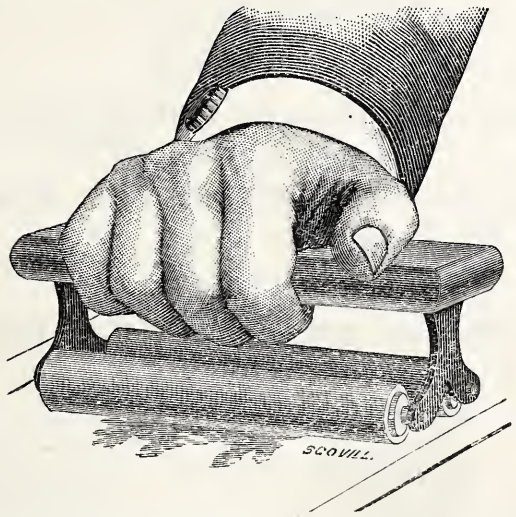
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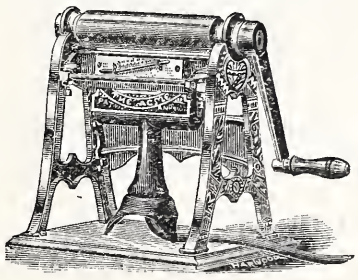
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THE PRICE OF AN 8-INCH, ALCOHOL, GAS or OIL,

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It will burnish 8x10 and all sizes under, and is pronounced by all to be the simplest, best working and most beautiful burnisher ever made.

Thermometer Attached, Engraved Roll, Flue Heating, Heats in Five Minutes.

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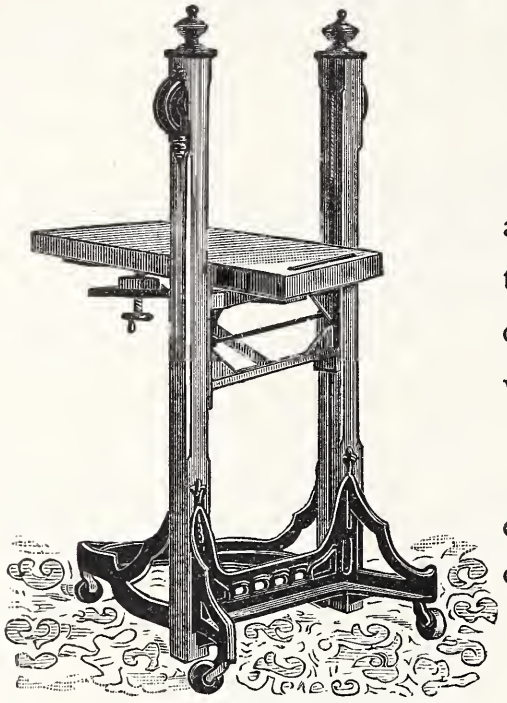
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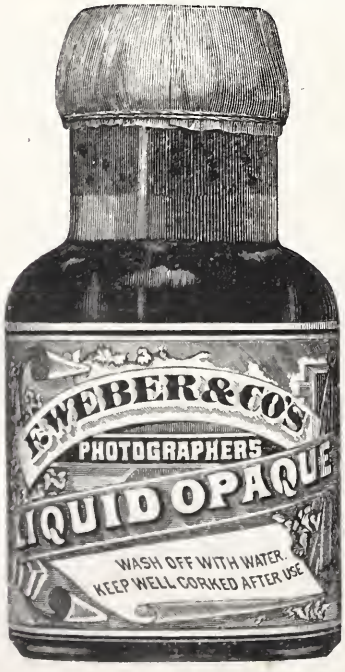
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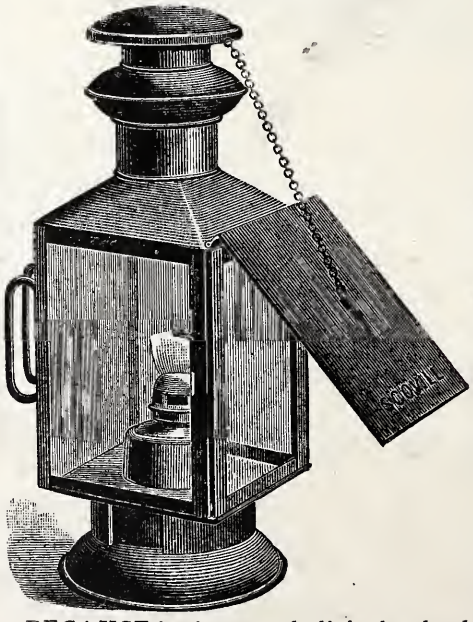
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Such is the reports of experts who have had them in use for months.

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BECAUSE the ventilation is perfect, and dangerofoverheating overcome.

BECAUSE it is constructed so that white light does not escape.

BECAUSE it gives ample light for the dark-room.

BECAUSE the abundant light does not fog, but does show any spot or blemish in the plate.

BECAUSE so much of the light may be thrown into the developing dish and be shaded from the eyes.

BECAUSE it may be used either with coal oil or candle.

BECAUSE the flame may be so quickly controlled by unlatching the door or uncatching the bottom of the Lantern.

PRICE, $2.50.



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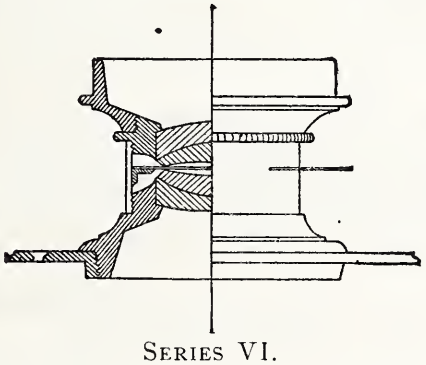
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Specially designed for copying line work, paintings, engravings, etc. Without a rival for microscopic sharpness evenly divided over the whole field.

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The above lenses and prisms are being extensively used in the largest photo mechanical establishments in preference to the most expensive lenses of other types.

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The 5 x 7 Henry Clay-Stereoscopic Camera
FOR TRIPOD AND HAND USE?

IT IS THE MOST COMPLETE CAMERA EVER MADE.

Price, with a pair of Optimus Lenses and Prosch Stereoscopic Shutter with Pneumatic Release..$75 00

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(Copyrighted 1890),

Has been designed for the purpose of simplifying the task of mounting slides so that when done they shall be WELL done; and to help the Lantern Operator to project them to the very best advantage.

There are several points pretty generally conceded, viz.:

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3.—Absolute Register. Mercantile Slide Plates are labeled 3¼x4 inches. As a matter of fact they are seldom of exact size, and the variation often exceeds ⅛ of an inch larger or smaller, either way. By first trimming on the dotted line which is to be on top when the slide is held upright, and then cutting the opening equally on each side of the central marks, the horizontal center line will always be thrown on the same place. To bring the perpendicular center always in the same place:—First trim the left-hand END of the mat by the dotted lines; that is exactly two inches from the center; cut the sides of the opening equidistant from the center; then by placing a "stop" on the lantern or carrier, all slides so matted will "register."

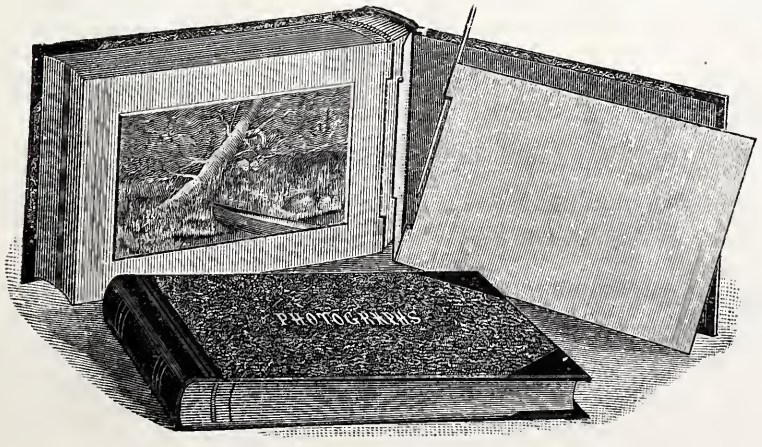
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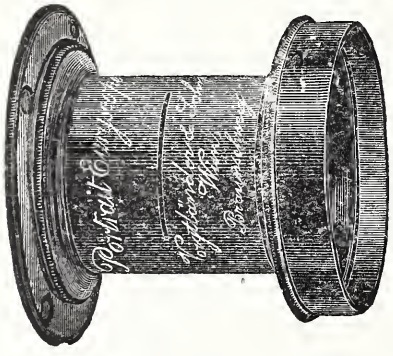
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Voigtlander's Euryscope Lenses,

which are made in SEVEN different styles.

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New England Agents for American Optical Co.'s Apparatus. Best in the world. Send for Price List.

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Patented July 17, 1887.

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THE SCOVILL MAGNESIUM COMPOUND

IS ENTIRELY FREE FROM POISONOUS INGREDIENTS.

THE GENUINE ARE IN SILVER WRAPPERS.

In order to demonstrate this, quantities have been eaten at various times. We have often pounded it in a mortar to show that it does not explode.

Price of Scovill Magnesium Compound.

In ounce bottles, with fuses	$0 50
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In half " " " "	2 65
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No. 1, put up in packages containing 6 cartridges.	$0 50	$6 00
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Permanent Bromide Paper

Is unequaled for perfection of quality and coating.

None of the imitations have such a beautiful, neat surface, such pure whites and such delicate gradations of half tone. No other paper takes so readily the popular Sepia tones.

13 First Prize Medals.

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"We value the Caswell Holder, for which we paid $25, at $100." ADT & BRO., Waterbury, Conn

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SOMETHING NEW UNDER THE SKYLIGHT,
SCENES CHANGED IN HALF A MINUTE.

25 sold in April.
25 sold in May.
25 sold in June.
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100 sold in August.

HOW IT OPERATES:

A few turns of the upper crank rolls up the scene; the other one lowers it to its brackets.

Now the sliding roller supports are brought opposite another roll which is drawn into them, elevated and unrolled.

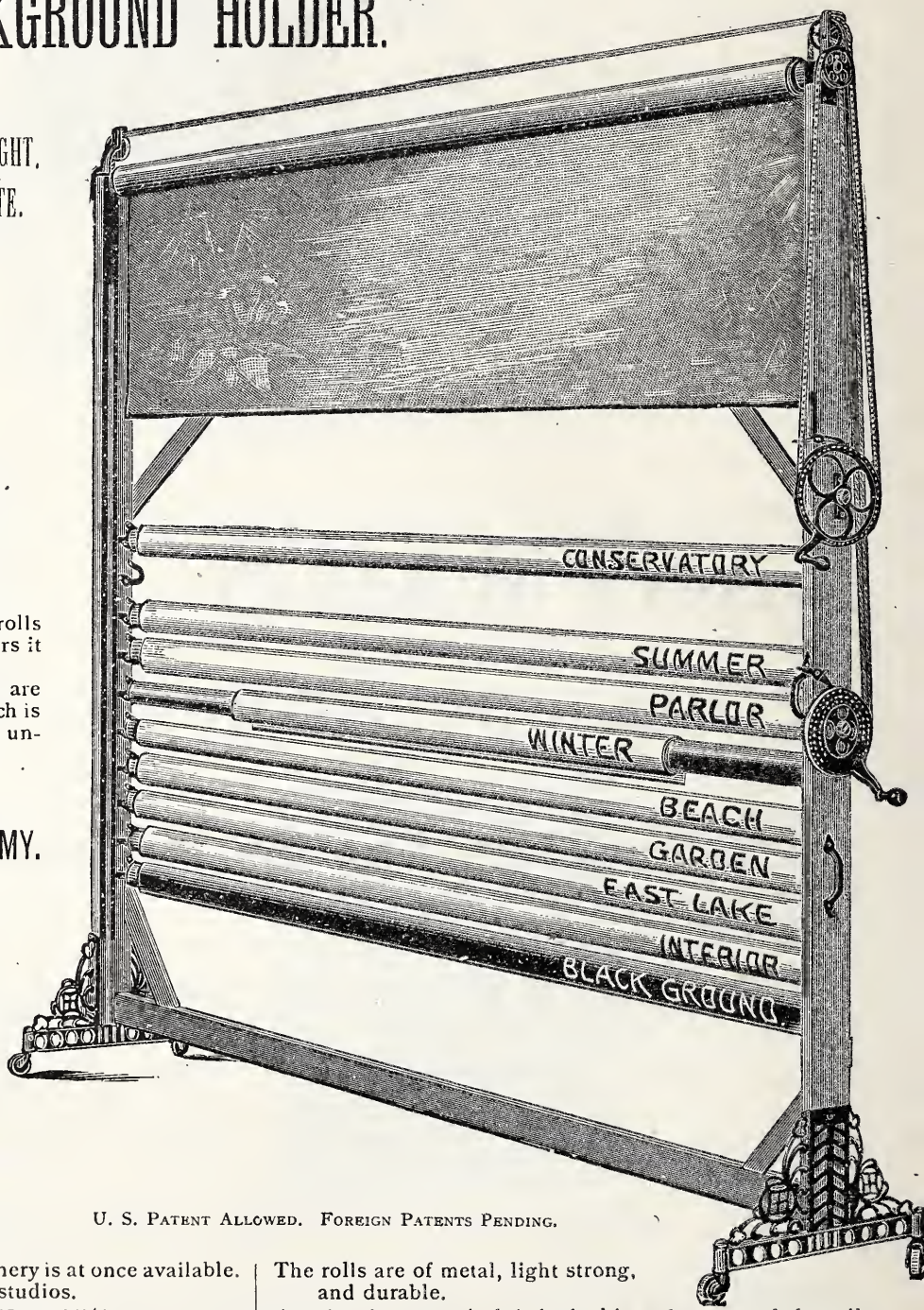
FULL OF PRACTICAL ECONOMY.

THIS IS THE PRICE:

$25,

INCLUDING ONE ROLL.

Extra Rolls, $2.50 each.



U. S. Patent Allowed. Foreign Patents Pending.

With this holder every piece of scenery is at once available.
It is a positive necessity for small studios.
It saves a sight of trouble to the busy operator.
It takes no more room than an ordinary frame.
You can raise or lower the ground to suit your subject.
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It is just the thing for felt bust grounds.
Grounds cannot unroll in brackets, nor while being elevated.
The weight being below the centre, it is not top-heavy.
Many of the castings are of malleable iron and can not break.
Manufactured by ALVIN C. CASWELL, Fitchburg, Mass.
For sale by all stock dealers.

The rolls are of metal, light strong, and durable.
A strip of strong cloth is locked into the seam of the roll.
The background is attached to this cloth by brass fasteners.
It takes but a few minutes to properly hang your scenery.
It is impossible for the roll to fall from the machine.
It is a very easy matter to set the machine up.
The joints are halved and put together with screws.
Frame of whitewood, finely finished in cherry.
The mechanical construction is very simple.
There is nothing about it liable to get out of order.
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The castings are double japanned.
Weight, boxed, ready for shipment, 125 pounds.
Securely packed in the knock-down.

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Sole Agents for the United States and Canada,
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(LONDON, ENGLAND)

PARAGON LENSES.

We take great pleasure in announcing to American Photographers that henceforth we shall be enabled to supply them with JAMES SWIFT & SON'S PARAGON LENSES.

The reputation of these Lenses abroad is superior to that of any other make. They have been selected by the following named institutions because of their unequaled qualities and excellence.

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"SEVEN TIMES ONE."

THE PHOTOGRAPHIC TIMES.

VOL. XXII. FRIDAY, MARCH 4, 1892. No. 546.

"SEVEN TIMES ONE."

There's no dew left on the daisies and clover,
There's no rain left in heaven,
I've said my "seven times" over and over,
Seven times one are seven.

I am old, so old, I can write a letter;
My birthday lessons are done;
The lambs play always, they know no better,
They are only one times one.

We take pleasure in presenting our readers this week with another specimen of pictorial photography by Miss Catherine Weed Barnes. The picture is from a series of negatives illustrating Jean Ingelow's famous poem. The picture speaks for itself. In connection with the lines quoted above it requires no explanation. Miss Barnes has been extremely happy not only in the choice of the little girl model but also in the background and the accessories of the picture.

A LADY AMATEUR.

MISS CATHERINE WEED BARNES, the author of our frontispiece picture this week, was born in Albany, N. Y., January 10th, 1851, being the oldest child of Hon. William Barnes and Emily P. Weed. She received an academical education at Albany and different boarding-schools before entering Vassar College. Overwork while there caused an illness which threatened congestion of the brain and forced her to give up the idea of graduation. In 1872 she went with her parents to Russia, where Mr. Barnes was an official delegate from this country to the International Statistical Congress at St. Petersburg. The delegates while there were the guests of the Russian government. Miss Barnes also has traveled extensively in this country as well as abroad, and since 1886 has never gone without her camera. In 1889 she lost her mother, which brought on her the care of her father's house. Beginning photography merely as a pastime in 1886, it has become to her such a mental tonic that she has adopted it as her life work, both as a photographic editor and practical worker in the studio and laboratory. A close student and thinker, Miss Barnes goes to the bottom of things, and in camera work not only makes exposures and develops the plates, but makes lantern slides, manages her own oxy-hydrogen lantern, and experiments with the various printing methods constantly being brought out. She is an active member of the New York Society of Amateur Photographers, and the Brooklyn Academy of Photography, the only woman honorary member of the Chicago Camera Club, and recently she became a member



Catharine Weed Barnes.

of the Postal Photographic Club. For several years she has written for the different photographic periodicals, and about two years ago became one of the editors of the *American Amateur Photographer*. She also edits a special department in *Outing*, and is writing photographic articles for *Frank Leslie's Weekly*. After reading some papers before the New York Society she was asked to lecture before a number of other clubs and exhibit slides. At the Boston Exhibition of 1888 she received a diploma and at the New York one in 1891 received a silver medal for lantern slides. Her preference is for figure work, and she has an excel-

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lent studio, nearly 40 feet by 17, which has been carefully fitted for this work.

She is making a study of chemistry, and has a well-organized developing room. Her printing room was once her portrait studio, but was given up as being too small. She occasionally uses a hand camera when on a journey, but for all regular work prefers one with a tripod, and has several varying in size from 4 x 5 to 16 x 18. Her lenses of different makes are very fine. She buys no instrument or plates without testing them, and understands all the different parts of her lenses and cameras, several of which have been improved at her suggestion. She has competed at two professional exhibitions and read a paper at the Convention in Buffalo, in July, 1891. Miss Barnes has given much attention to music and painting, but they are now laid aside, so great is her absorbing interest in the camera. While believing there should be no question of sex in this work, she yet believes that women ought to help each other loyally and constantly, as it offers them peculiar advantages either as amateurs or professionals. She is planning to go abroad in the spring to attend the Photographic Convention at Edinburgh, in July, and then make a camera trip through England and Scotland to accumulate material for use next winter editorially and at lantern exhibitions. Last October she read a paper before the annual Convention of the Association for the Advancement of Women, of which Mrs. Julia Ward Howe is President, at Grand Rapids, Mich., on women adopting this work as a regular profession. The paper was well received. She has also given talks before industrial societies on the same subject, and has been given receptions by various camera clubs, and by the Social Art Club of Syracuse, N. Y. She is a member of the Sorosis Club, being in full sympathy with its efforts to encourage women to make of their lives something practical and helpful not only for themselves but others.

HISTORY OF THE GELATINE PROCESS.

GELATINE as a medium to hold the silver haloids was used by Niepce de St. Victor in his researches to find a photographic process upon glass plates. He tried also starch, and finally albumen, to which he gave the preference as forming an insoluble compound in presence of silver nitrate, which is besides sensitive to light. This led him to apply albumen to preparation of positive papers.

Wet and dry gelatine films were used as far back as 1851 by A. Poitevin. The processes devised by this distinguished savant are quite interesting. They are recorded in *Comptes Rendus*, vol. xxx., p. 647, and vol. xxxii., p. 927.

In 1861, Alexis Gaudin published in his journal, *La Lumiere*, an account of his experiments with compounds "holding in suspension all the necessary silver salts." These compounds, which he devised and termed *photogenes*, consisted of collodion and gelatine emulsions, each one prepared with silver iodide and an excess of silver nitrate. They were consequently little sensitive; moreover the alkaline development was not then discovered, and had it been it could not have employed with films containing silver nitrate, even in very small quantities. "Gelatine," stated Gaudin, "is the most convenient substance to make a photogene."

These collodion and gelatine emulsion processes were not noticed, although the attention of experimenters was called to their importance by that enthusiastic photographer, the then editor of *The Photographic Notes*, the late Thomas Sutton. "There is," said he, "a field open for investigations, and if further experiments should be attended with success, the operations of the photographers will be greatly facilitated and the art advanced and popularized."

Three years after, B. J. Sayce and W. B. Bolton published their collodio-silver bromide emulsion process, and in 1871 Dr. R. L. Maddox described in the *British Journal of Photography* a gelatine emulsion process which is similar to that of Gaudin: He dissolved calcium bromide in a solution of gelatine acidified by *aqua regia*, then sensitized it with nitrate of silver. The glass plates were coated with this compound, then allowed to dry without being previously washed. Therefore the photo-film was little sensitive, and the images were often veiled when developed by the alkaline pyrogallol. J. King, having observed that the plates so prepared were covered when perfectly dry with crystals of potassium and silver nitrates, somewhat improved the process by dialysing the emulsion (1873); and R. Kennett, by preparing it with an excess of alkaline bromide and eliminating this excess together with the alkaline nitrate formed, succeeded in obtaining a more sensitive photo-film and preventing the gray, green or red fogs which were the principal objections to the use of gelatine emulsions. Kennett patented this process in November, 1873. As it is seen, the preparation is entirely the same as that of collodio-bromide emulsions, gelatine being substituted for collodion.

The method of preparing gelatine emulsion of any grade of rapidity is the discovery of Charles Bennett, an amateur. Guided probably by the researches of Stas, he subjected the emulsion, pre-

pared after the manner of Kennett, to the action of heat, whereby the silver bromide, undergoing certain changes pointed out by Stas in the molecular arrangement of its components, is rendered exceedingly sensitive to the luminous influence.

In this process—for which Mr. Bennett did not take a patent, but which he simply published in the *British Journal of Photography* for March, 1878—the physico-chemical changes are obtained by a less or more prolonged digestion at 32 deg. C. (90 Fahr.), several days being necessary to obtain the most sensitive modification of the silver bromide allowable for photographic purposes. But Geo. Mansfield showed (August, 1879) that similar results are produced by boiling the emulsion, always containing an excess of alkaline bromide, but a small quantity of gelatine, then adding sufficient of it to obtain a photo film having enough body. From fifteen to thirty minutes boiling gives an emulsion of great sensitiveness. In the same year (October, 1879) Dr. Von Monckhoven, in a remarkable paper read before the Association Belge de Photography, demonstrated that the green silver bromide, *i. e.*, an exceedingly sensitive modification of the ordinary salt, is equally formed by simply adding aqueous ammonia to the emulsion and letting it then *ripen* for a certain period in a moderately warm water bath.



By these successive improvements the original gelatino-silver bromide emulsion of Alexis Gaudin was at last rendered one of the most perfect compounds used in our art, and stands without a rival for sensitiveness.

It should be observed, however, that without the alkaline development the facility with which the modified silver bromide is acted on by light will be of little value, and that the gelatine emulsion process would be discarded for obvious reasons.

Harry C. Jones, proprietor of the New York Photo-Electrotype Company, has recently introduced a process for newspapers and others using cheap ink and paper, by which illustrations can be used direct from photographs and wash drawings. The effect, of course, is rather coarse, but it puts half-tone work within the reach of all. The plates are deep and clean enough to print even in the ordinary daily newspapers. The illustration accompanying this note, and those in the supplement, are from electrotypes made by this process, and are printed on our ordinary paper, in the ordinary way, with the regular printing ink. This is undoubtedly an advance in photo-illustrating, for it enlarges the field in which photography may be usefully applied.

AN INTERNATIONAL PHOTOGRAPHIC INTERCHANGE.

Readers of the "American Annual of Photography and Photographic Times Almanac" for 1892 will remember the article by Charles Hamfeldt, of Helsingfors, Finland, in regard to a National Interchange of Photographs.

Mr. Hamfeldt desires to formulate a plan which will be acceptable to all, and writes to the editor of this magazine under date of January 31st, as follows:

"You will remember that I propose the forming of a Photograph Exchange League, in which every club, in

every country, should join; and I fancy, from letters that have already reached me, that my proposal might be carried out.

"Now there will in all probability be some Photographic Conference at the Chicago World's Fair. Would it not be advisable to connect an Amateur Congress with this, and could not this matter then be taken up?

"I propose that a circular should be drawn up—in English, French and German—and sent to all the clubs, as per your international list, and we could therein ask what the general opinion is on this point. I should like this to go through you, as you are, or are fast becoming, the organ of the amateur photographic world.

"I had the other day a letter from an English gentleman wherein he calls my proposal 'an excellent one.' He says he thinks it will be a great pleasure for everybody to keep an international album, where photo prints and scraps can be brought together from every point of the globe, and from which not only pleasure but foreign knowledge can be got. Besides, he points out what an encouragement it will be for amateurs to rise in their ability. For the larger and better a photograph he is able to send, the better may he expect from abroad in return.

"I should like to hear from all on this subject."

We throw the columns of THE PHOTOGRAPHIC TIMES open for the discussion of this subject, and shall hope to hear from many of its readers.

WHERE ARE WE NOW?

AT the beginning of a new year it may be worth while inquiring how we now stand. To begin with: How is business? If we are to believe the pessimists, professional photography has been going to the dogs for many years, for so long a time, in fact, that it seems to be a very slow process, and portraiture still flourishes.

It is usual to explain the falling away of photography as a trade by saying that luxuries have to be given up before necessaries, and that photographs are luxuries; yet those who are fond of dark sayings hold that at this end of the century our chiefest necessaries are our luxuries.

However that may be, or whether photographs are a necessity or a luxury, it is certainly true that more photographs are produced than ever. Unfortunately the doers have increased out of all proportion. In America, if we may believe little hints of evidence, the business is still very good. Several of your periodicals sometimes publish photographs sent them by portraitists, and in giving an account of their pictures they often excuse their shortcomings by saying something to this effect: "She willingly consented to pose for me, and in a very short time I had secured the negatives required. *There were many people waiting for sittings*, and I had not time to give the matter special study."

It would interest English photographers to hear if this is so always with you. Are your waiting-rooms always full of expectant sitters? Our photographers either make their appointments better, or their business has fallen away, for it is very rare to find more than one or two sitters waiting. That merry time has gone by. The real danger to photography as a high-class business is the increasing ease of a process which, for ordinary work, does not require more skill than is looked for in any other trade, and the push for business seems likely to make it forgotten as an art altogether.

There is another thing that tends to lower the art, which, perhaps, I had better apologize for mentioning—the glorification of the material before the product. In some of your magazines the frontispiece illustration does not seem to be given so much as an example of what can be done in art with photographic materials, as an advertisement of the materials themselves. In most of them the short article on the picture is concluded with the name of the printer, the excellent paper, and even, in some cases, the importer of the paper, together with the name of the maker of the plate employed. This is carried to such an extremity that I noticed that one fairly good landscape was entitled, "Made on Blank's plates!" Now, all this is very bad from an art point of view. I don't object to advertisements; they are the life of trade and are usually good reading, so that they keep within the truth—in this, perhaps, I expect too much—but great art will never be stimulated or produced by the desire to advertise materials or the other obstacle I have mentioned,—the excuse of want of time.

It has been the fashion here to attribute all of our misfortunes to the spread of amateur photography. I have never held this view, and I notice a phase in amateur trading—for they do trade—that will be distinctly good for professional photographers, and indeed will do somewhat to save them from themselves. Competition in the profession has reduced prices until there are photographers who will take your portrait for nothing on the chance of selling you a frame. This is, of course, one of the agreeable swindles to which an innocent art has given birth, but there it is, and there are others almost as bad. Some of our amateurs are going on the other tack and asking, *and getting*, large prices for their work. Little account has been taken of late years of the artistic value of a photograph other than a portrait, and the price is usually decided by the size. A shilling, for instance, is considered good value for a 10 x 8 landscape. But at least one of our amateurs now

sells his prints of this size at a guinea each, and, moreover, finds customers. I cannot help thinking that instead of damaging the trade this worthy amateur is one of its greatest benefactors, for it is admitted by all that plenty of good photography is done, and that all that is the matter is the small amount paid for it. If the public could only be taught that they must pay for quality as well as quantity, quality would be more worth producing and all would be well. And, peradventure, a curiously unexpected result may occur, as suggested in the words of an old professional friend, who said the other day that he was about to turn amateur, so that he may be able to sell his pictures better! I am glad to say I notice a decided tendency in the best portraitists to raise their prices, while common work, on the other hand, is cheaper than ever.

A great change has come over photographic printing, and this has afforded an opportunity—or rather a good excuse—for portraitists to raise their prices. Years ago, in the preface to a little book on "Silver Printing," I said that silver printing had been often doomed, but it still survived. It survives still, but in a different form The use of albumenized paper is dying out. If it were not for the obvious pun, I should say that the dying due to the makers has had a great deal to do with its death. The pearly tints of the dyes used at first to counteract the yellowing of the paper were "improved" into hideous mauves and pinks, the vulgarity of which could not last. Good things are often improved off the face of the earth for no other reason than for the sake of change. The place of albumenized paper has been partly taken by another form of silver printing, and nearly all the best photographers, when they do not use platinotype, make their portraits on mat paper, toned with platinum, and in exhibitions silver printing in albumen is one of the lost arts. It still survives, however, in the productions of cheap photographers, and for topographical work, when that work is not done by the still cheaper mechanical processes.

Professionals suffer from cutthroat competition and the amateurs have their own violent rivalries. One form of the disease, with the latter, is the great craze for medals. I don't think they care much for the quality of them, either in the die-sinking or the metal. Gold, silver, or bronze, they all count. Neither do they care for the quality of their opponents in the competitions, the easier the victory the better.

A medal taken at a local Little Pedlington Exhibition is shown and worshiped as much as if it had been won in fair fight against all the talent of the Kingdom. Speaking of medals reminds me of a curious discovery as to the intrinsic value of some of them awarded in such profusion, which was made the other day by one of our amateurs. One day he wanted some silver nitrate in a hurry, and the nearest town was several miles away. Like Bernard Palissy, when he sacrificed his wife's wedding ring as a last resource in his experiments, he dissolved one of his silver medals—and found it contained a few pence-worth only of silver, the rest was alloy.

There is one matter in which we are certainly improving in the old country. We are decreasing the amount of retouching and increasing the quality of the little that is necessary. In the last London Exhibition—the worst we have had in some respects—it was delightful to see how glaringly dreadful some few conspicuous examples of what to avoid in retouching—the billiard-ball polish—looked in comparison with others in which the reticence of nature had been observed. The abuse of retouching is a fine example of a good thing gone wrong, and drives teachers to despair. It was an excellent corrective as at first used. There are, no doubt, defects of Nature and the process combined which require removing, but when Nature is refined off the face of mankind it is enough to make those who introduced a useful process tear their hair and sit in sackcloth and ashes. It did me good to read Mr. W. H. Sherman's vigorous attack on retouching in the first number of THE PHOTOGRAPHIC TIMES for the year. In this I think the writer incidentally shows the cause of much of the bad work that disgraces our art. He describes a vulgarly over-retouched cabinet pic ture, and quotes the back of the mount, decorated, of course, with the palette and brushes which the "proprietor" would not know how to use, together with the name of the "artist," finishing with this significant line: "*Branches in all the principal cities of the Union.*" This explains it. Much over-praised "enterprise" takes the place of art. How could this "art-photographist" be in many places at the same time? He is not a bird! Great artists are individuals, not companies. An artist is a person who does a certain kind of work, and it seems ridiculous to point out that the same person cannot be exercising his calling at one time in "all the principal cities in the Union." Art is the expression of a man's mind, and until it is recognized that it is the *man*, and not the *system*, that does the work, we cannot expect individuality or art. And in the matter of retouching we seldom find common sense. *H. P. Robinson.*

THE STUDIOS OF NEW YORK.

II.

The great artist puts his stamp on everything he makes. And his choice of the subjects, his manner of treating them, his conception of the ideal and beautiful denote his character. Look at the striking difference between the works of Michael Angelo and Correggio, of Ribera and Fra Angelico, of Salvator Rosa and Claude Lorraine, of Rembrandt and Van Dyck, and without knowing anything of the man one will, as by intuition, guess their thoughts, their life, their loves.

Indeed, it would be a gross exaggeration to compare to such great artists a photographer, whatever be the technic and artistic excellence of his pictures: but still there is in the manner of composing, that is, in posing, grouping and lighting of certain professional and amateur photographers an originality which characterizes their works and sometimes—we know one of them—the men themselves.

Amongst the professionals of New York there are two who enjoy a well-merited popularity. They are good, correct designers, and before being photographers they were artist-lithographers of not a little merit.

One established a photo-studio in Broadway in 1865,

Et pour ses coups d'essai il fit des coups de maître.

He made a revolution in photography! We have named Napoleon Sarony. Before him the artistic side was commonplace Nobody, if we except Brady, Lawrence, Gurney, Haas and a very few other daguerreotypists, seems ever to have thought to compose a portrait according to the individuality of the sitter, or to model otherwise than by the light always distributed in the same manner.

In the works of Sarony his bold manner of opposing lights to shadows, the energy imparted to the subjects—energy, this must be said, not always kept within proper bounds—reflect the artist's temper as a mirror, while the gracious attitude he knows how to give to women, the harmony of the lines, the choice of the surroundings to place the model *en scène*, show his sure artistic taste. But in these portraits the impulsive nature of the man now and then shows its influence, and not always to the advantage of the work.

The manner of the other artist we have visited is quite different. Repose, simplicity, elegance, which do not exclude variety and, which is most important, the representation of the sitter's individuality, are the characteristics of Kurtz's portraits. In all of them there is *un je ne sais quoi distingué* which makes one recognize a Kurtz as we do a Sarony.

Kurtz does not abuse backgrounds and accessories. On the contrary, he prefers plain, little elaborated grounds, if it is proper to employ them, to those theatrical and unnatural ones, "only good to spoil a picture," which we see in the studios of ordinary photographers; in a word, everything in his portraits shows his cultivated taste and his care of following the principles which guide the painter as they should the photographer.

The specialty of Kurtz is phototypography, in which he also excels The perfection of the *blocks* is indeed remarkable by the fineness of the half-tints and the contrasts which it is so difficult to preserve in this process. Every block when delivered to the printer is perfection itself; not a single solution of continuity in the lines, no matter how small, not a blemish. They are made by Meissenbach process, but improved.

The Times and its profusely illustrated "Annuals" contain specimens of Kurtz's half-tint relief engravings, which at a little distance seem to be prints from aqua-tint engraved plates.

The studio of Sarony is now and for many years located at Union Square. When you enter the parlor you know at once you are in the home of an artist: paintings, sculptures, Egyptian antiquities, bric-à-brac, every articles of virtu are there in a *beau désordre*. The crayons designed by Sarony himself are remarkable, unlike any others; it is a genre which belongs to him and which was imitated everywhere, in Europe as well as in this country. We regretted not to see as many of them as there were in former times.

Pastels, aquarelles, now seem to be the fashion in leading photo studios. It is useless to say that at Sarony's they are artistically good. We have remarked amongst the water-colors a full-length portrait of the beautiful Lillian Russell, as "La Cigale," which is simply a jewel of grace and coloring. We seemed to see a gentlewoman, companion of the unfortunate Queen, who dressed with the charming costume of the shepherdesses of Boucher and Watteau, played in action the "bergeries de Florian," at Versailles, in the little Trianon. Photography *is* an art in the hands of the Saronys and of the Kurtzs.

Sarony does all the posing himself. His studio is spacious but badly lighted. The skylight is too flat, and, as a consequence, the artist works under great difficulties.

The exposure time is from one to three seconds

for small pictures; eight to ten for large heads. All the negatives are developed by ferrous oxalate; they are free from fog and of a good printing color. No aristotype paper is used, the printing being done on plain or albumen paper and toned in a solution of gold terchloride neutralized by sal soda (commercial sodium carbonate).

The reception parlor of Kurtz's studio is brightly lighted by large windows looking on Madison Square, and therefore transmitting only pure white light, as it should be in an exhibition room, in order to allow one to judge the coloring of the paintings, water-colors, etc. It contains specimens of every kind of pictures made in photo establishments. There are large heads of men of distinction which are full of character; one, the portrait of Peter Cooper, we think, on a light-brownish ground, which by its contrasts of light and shadow and the good ordinance resembles the unmistakable manner of Rembrandt—not the Rembrandt of photography, which is nothing but patches of whites and blacks. There are also charming pictures of ladies. Amongst them we remarked a portrait in a pseudo Byzantine style, well appropriate to the model and the coloring.

Kurtz's sketches are the specialty. They are vignetted color-crayons *à la Landelle* and *à la Vidal.* Nothing so pretty as this manner when applied to portraits of ladies and children.

The studio is on the fourth floor. It is well ventilated, very large, lighted by the well-known regular photo-skylight. The light is all over subdued by white curtains, which is a *sine qua non* in the gelatine and ferrotype processes to obtain soft effects. The lenses are of course the best. Exposure time 3 to 5 seconds for small pictures, about 12 for large heads. These exposures may appear long to many of the readers of THE TIMES, but the operator, Mr. Geo. W. Loud, does not believe in short exposures. Plenty of details and contrasts sufficiently to relieve the whole is the motto at Kurtz's, and this can be had only by exposing for the shadows and regulating the development accordingly.

We went into the dark-room, a very large one, by the by, and assisted in the development of some negatives. Mr. Loud develops with ammonio-pyro. The solution is ready-made and compounded by himself, and keeps for many months. To develop he dilutes it more or less, according to the effect he wishes to produce; strong solutions for contrasts, weak (very diluted) to obtain details and harmony. The image commences to be visible in thirty or forty seconds, and, generally, is fully developed in less than four minutes. After fixing, the reduction is of a peculiar light-brownish color, transparent in the light. The negatives are quick printers as a consequence.

The proofs are toned with a gold borax solution,

We here tender our thanks to Mr. Kurtz, Jr., and to Mr. Loud, for their courtesy. The latter gentleman is a learned photographer of great experience, and in conversing with him we learned something.

(*To be continued.*)

THE CHEMISTRY OF PHOTOGRAPHY.

(*Continued from page* 109.)

CHAPTER IV.

PHYSICAL THEORIES OF THE LATENT IMAGE.

A *physical* change in matter is one by which the chemical composition of the substance remains unaltered, although some of its physical properties, as its color, taste, etc., are changed.

Light is able to produce physical changes in certain kinds of matter. When lumps of red *realgar* (arsenic disulphide, As_2S_2) are exposed to light, they crumble away to a yellow powder. But by simply fusing this powder it is restored to the state of red lumps as before. Chemical analysis shows that the yellow powder and the red lumps have precisely the same chemical composition (As_2S_2). The change of color is probably due to some rearrangement of or in the molecules of the realgar.

Half a century ago, M. Moser, of Konigsberg, detailed* some remarkable experiments, which were repeated and extended by Draper,† showing that if any clear, hard surface, as of metal or glass, be covered with a perforated screen and then exposed to light, an image of the screen can be subsequently produced by removing the screen and *breathing* upon the bare glass. The water-vapor in the breath condenses most upon the parts which have been exposed to light.

I. *The Latent Image Considered as a Vibration of the Atoms*—It is evident that any cause which weakens the force by which the atoms forming a molecule are held together, will render that molecule more easy to be decomposed. Physicists and chemists agree in believing that not only are all the molecules of all matter in constant motion (this molecular motion we know as *heat*), but that the *atoms* composing each molecule are themselves moving or vibrating. If this atomic vibration be greatly increased, it may be sufficient to cause the

* *Journal of the Academy of Sciences* (Paris), for 18th July, 1842, etc.
† *Philosophical Magazine*, for September, 1840.

molecules to "shake themselves to pieces," and chemical decomposition then takes place. Thus by heat alone we are able to decompose the red oxide of mercury into mercury and oxygen.

HgO	=	Hg	+	O
Oxide of Mercury	*produces*	Mercury	*and*	Oxygen.

But if the motion of the atoms be only increased to a certain extent, the effect may be that their affinity for each other will be just so much weakened as to allow of their decomposition by solutions (developers) which normally would have no effect upon them.

Suppose we compare the two atoms which compose a molecule of silver bromide (AgBr) to two balls united by a short piece of india-rubber. Let the normal condition of the balls be that of revolution round a point midway between them, just enough to keep the rubber stretched. Let the motion of the balls be now increased. The result will be that more tension will be put on the rubber, the balls will move farther apart and a *less* force will be required to cut the connecting link and so separate the balls entirely, than if they were in their normal state.

When molecules of the silver haloids are exposed to light, the advocates of the "vibratory theory" believe that the motion of their atoms is increased, and that their subsequent decomposition by a developer is thus facilitated.

The physical theory, in one form or other, of the latent image, was first advanced by Moser, to whose experiments we have already alluded; it was supported by Hardwich, and by Dr. D. Van Monckhoven;* at one time Mr. Carey Lea was its principal advocate,† though his later work has led him to renounce it. Light is a form of energy which travels through space in the form of ether waves. When these waves fall upon the silver haloids the molecules of the latter are thrown into a state of unstable equilibrium, and are then readily affected by chemical solutions (developers) which would otherwise be powerless to decompose them.

Objections to Physical Theories of the Latent Image.—If the latent or "photographic" image consists merely of the same substance as the unaltered silver salt, but in an abnormal condition as regards the position or vibration of its atoms or molecules, it is difficult to conceive how that abnormal position is *maintained.* Dry-plates have been exposed, and then kept for several years before development, without the resulting image showing any lack of vigor. Is it possible that any unstable condition or vibration could have been maintained during so long a period? Such a thing is not, however, impossible. In our own experience as a microscopist and geologist, we have frequently obtained thin slices of igneous rocks in which were cavities (visible only under the microscope) partly filled with some liquid, through which a bubble of gas moved with rapid speed backwards and forwards. The time since the rocks in question consolidated, and the bubbles were imprisoned, must be reckoned in millions of years. Yet the bubbles have probably been in continuous motion ever since!

But the case is very different with molecules of silver bromide embedded in a tough solid like gelatine; and all analogy would lead us to expect that if the latent image consisted merely of a vibratory movement of the atoms, or of an abnormal condition of the molecules, that it would speedily disappear; and that the plate would then be restored to its pristine state.

It was formerly believed that the latent image *did* disappear when the exposed plate was kept for a few months. And in the case of an exposed daguerreotype plate, especially, this is found to be the case. But in all such cases the plate has sufferred from the impurities always present in the atmosphere, from which it is found impossible to preserve the plate unless it be hermetically sealed up in a vacuum. Moreover, every film contains small quantities of substances which we can only consider as "dirt" (because it is "matter in the wrong place") and these substances combine with and destroy the latent im ge. In the case of the daguerreotype, the silver plate is sensitized by exposing it to the vapor of iodine. Now there is always present upon the plate an *excess of iodine.* If the action of light be—as we presently hope to prove—of a *chemical* nature, consisting in the separation of part of the iodine contained in the silver iodide, then we have present in this free iodine a substance which is able to combine with the partly reduced silver iodide and so to restore it to the state of normal iodide.

Ag_2I	+	I	=	2AgI
Silver Sub-iodide	*plus*	Iodine	*produce*	Silver Iodide.

Thus the fading of the latent image, in the case of the daguerreotype at all events, may be taken to be as much in favor of the chemical as of the physical theory of the latent image.

Starnes' Hypothesis of the Latent Image.—Light Ruptures the Gelatine Casing.—A second physical hypothesis for explaining the nature of the latent

British Journal of Photography for 1863, p. 74.

†*British Journal* for 1865-66-67, numerous articles.

image was broached by Mr. H. S. Starnes in 1883.* He urged "that light, acting on the salts of silver, when held in suspension in collodion or gelatine, has a previous mechanical action, namely, the rapid vibration or expansion of the particles, which strain or burst the protecting cells of the collodion or gelatine." It is certain that the gelatine of an emulsion protects and wraps round the molecules of silver bromide; for certain chemical solutions, which will decompose silver bromide when alone, produce no effect when poured upon an ordinary dry-plate. Again, if an emulsion of silver bromide in gelatine be exposed to light, and then *re-melted*, it will show but the merest trace of fog on development. Starnes reasons, that in a dry-plate every molecule of silver bromide is surrounded and protected by a coating of gelatine. The action of light *ruptures* the gelatine, and thus exposes the silver salt to the action of the developer.

W. Jerome Harrison.

(*To be continued.*)

Correspondence.

A NEW ENGLAND ASSOCIATION.

To the Editor of THE PHOTOGRAPHIC TIMES.

Dear Sir: A writer suggests in a recent issue of a photographic magazine that we have a New England Association. He advances many excellent arguments in favor of it. Now, as they say in town meeting, I want to "second the motion."

I cannot claim to be a prominent or influential photographer, but do claim to be a young worker, anxious to see photography advanced.

A more friendly feeling ought to prevail among members of the craft, and no doubt this would be promoted by a frequent coming together and talking over matters.

When dry-plates came into general use, there was a revolution in photography. Cutting of prices followed all over the country. The work was simplified—a man can make more pictures in a given time than formerly. Many who never could make a decent wet-plate became fair workmen with the help of the dry-plate.

Then the amateur craze came on, and people got an idea that 'most any one could make a picture. But it has already dawned upon the public that the new process did not reduce all photographers to a dead level. The amateurs have no doubt helped to a more general appreciation of good work, as most of them soon learn to discriminate and are usually free to express their opinions on the subject, which have some weight.

It has settled down to a steady thing now, has passed the transition state, and we need not expect any considerable change, in prices or the situation generally, until some new process is discovered for reducing the cost of production. Good work will be more and more appreciated and will always command a fair price.

Now is the time for photographers to organize, form associations, study each others' work, and work together. Let us have a New England Association.

Yours truly,

E. B. Luce.

* *British Journal of Photography*, vol. xxx., pp. 643, 656; vol. xxxi., pp. 501, 712.

Notes and News.

The Camerists of Oberlin organized as the Oberlin Camera Club, February 18, 1892. President, Mrs. L. M. McCormick; Vice-President, Miss L. C. Wattles; Secretary and Treasurer, Mr. Geo. Bushnell. Membership 10. Club facilities are as yet embryonic but promise to grow rapidly.

John Carbutt's Keystone Dry-Plate and Film Works were shut down for several days last week for repairs, the engine especially receiving a thorough overhauling. The works have now resumed manufacturing, however, and are turning out the famous Keystone brand of plates under more favorable circumstances than ever before.

S. R. Stoddard, the famous Adirondack artist, lectured on the Adirondack Wilderness before the Legislature of New York, under the auspices of the Forest Commission, in the Assembly Chamber, Thursday evening, February 25th.

Mr. Stoddard, with a few words of explanation, exhibited about 200 stereoscopic views of that picturesque region.

Photographs of a Theater.—Manager McFarlan. of "The Old Homestead," son-in-law of Denman Thompson, is quite a lover of art. He is an amateur photographer and carries with him one of the finest cameras ever made. During his stay in Pittsburg he devoted his spare time to taking views of the many beauty spots about the Alvin Theater. He spent considerable time about the conservatory, and as a result has "brought out" some very fine negatives of that bower of beauty. He intends to mount them in superb style and place them in his large collection.

To Make Photographs Luminous.—A photograph can easily be made luminous in the dark by means of the following process suggested by *La Tribune Photographique:* Take a white mount and, after coating it with starch paste, sprinkle over it luminous powder, and press it down firmly to make it adhere. All that is now necessary is to make the unmounted silver print as transparent as possible by coating it on the back with castor oil, and wiping away the surplus oil. By placing this over the prepared mounting card, and exposing it to daylight, a luminous positive is obtained, having a curious appearance when viewed in the dark.

To Clean Photographic Lenses.—Between the parts of a compound lens it often happens that a peculiar fungi analogous to mildew will form, and to remove this a French photographic journal suggests the following: Remove the lens and place it in water whose temperature is high enough to liquefy the Canada balsam which forms the cementing substance. Separate the two glasses, and wash the surface by means of a piece of chamois soaked in ether or turpentine, and afterward dry the surface with

chamois. Place one or two drops of balsam in the center of the concave lens, and fit in the convex lens. With a light pressure and a circular movement, the balsam is made to spread itself evenly over the surface in a fine layer, all excess oozing out at the edges. It is now only necessary to let the lens dry, when it will be found to be in good working condition.

Resinized Silver Paper.—The particular method of preparing the paper recommended by Herr Valenta is as follows: Ten parts of chloride of ammonium are to be dissolved in one hundred parts of water; from three to four parts of gelatine should be swollen in water. To prepare the saponified solution of resin, some water is heated to boiling point in a porcelain dish, and some solution of ammonium added, and the light yellow French resin, finely powdered, added in small quantities, with constant stirring. When all the resin is saponified and the solution quite clear, the swollen gelatine is added and dissolved, the solution of chloride of ammonium is now added, and the bulk of the solution made up to one thousand parts with distilled water, carefully neutralized with dilute hydrochloric acid; and finally a concentrated solution of citric acid added till a strong acid reaction is given. The result is precipitated in a very fine state of division by the addition of the acid, and a milky liquid thus obtained, which is used to salt the paper with.

Rives paper gives the best results, and it is best salted by spreading the warm solution over the paper with a pad, and then allowing it to float on the warm solution for three minutes. The salted paper should be dried in a fairly hot room. Sensitizing may be effected as usual by floating on a 50 or 60 grain silver solution for two or three minutes, and then drying in the dark.

The paper should be fumed for ten minutes before use, as greater brilliancy and quicker printing is thus obtained. The prints, when removed from the printing frame, have a dark-blue, violet shade, and if washed slightly and then fixed in an acid fixing bath, a pleasing reddish-brown tone results. The prints are not sunken in, and possess, much greater brilliancy and purer whites than ordinary salted paper prints.

Beautiful black prints may be obtained by the following procedure, and they closely resemble good platinotypes. The prints must be well washed to free from nitrate of silver, immersed in a bath of gold chloride 1 part, borax 80 parts, water 10,000 parts, till they assume a deep violet tone when examined by transmitted light. They should be then washed and placed in a platinum bath composed of 1 part chloroplatinite of potash, 300 parts of water, and 15 to 20 drops of hydrochloric acid. They tone very quickly to a fine black, and should be then well washed and fixed. It is essential to print very deep for this platinum toning.

If the prints are fixed on removal from the gold bath, the image on drying is a good reddish-black, and if an acid uranium nitrate bath be substituted for the gold and borax bath, a fine red tone is obtained.—*Amateur Photographer.*

The "Eldorado Bench and Wall Combination" is the latest accessory introduced in the photographic trade. It is capable of making eight different combinations of singular effectiveness; and the price is so low that this artistic accessory is within the reach of all. Price, $20.

Photographic Societies.

THE COLORADO CAMERA CLUB.

THERE is nowhere, perhaps, where a home of the Knights of the Camera was more needed than here amidst the grand scenery of the Rocky Mountains. It is therefore a matter of no small interest to tourists who use the camera, who may at any time journey out to this picturesque region, to know there is a club of enthusiastic photographers to welcome them, and a club house where they can find every facility convenient for developing their negatives, changing plates, etc.

The Colorado Camera Club is barely two months old, but has a membership of over fifty. The officers are, W. H. Jackson, President; Professor Hart, Vice-President; C. C. Candy, Secretary; Wm. Miles, Treasurer; H. S. Bellsmith, Corresponding Secretary, and Mr. Simmonson and Mr. Hover, two additional Directors.

The choice of Mr. Jackson for President was unanimous, and was certainly a wise one. His fame is world-wide, but he is nowhere more famous or more popular than at home.

We have already had two most successful lectures illustrated with the lantern, the first by Mr. J. A. Chain, on "Rome," the second by G. W. Platt, on "Composition in Photography."

The club is organized upon a broad plan, admitting both professional and amateur photographers. Ladies are also admitted to membership.

The club is composed of two classes of members—active and associate. Active members are require to pay ten dollars entrance fee, for which they receive a certificate for one share of stock, which is negotiable; the club being organized as a stock company.

The associate members are admitted upon the payment of three dollars.

The monthly dues are one dollar per month to all.

It is intended to exchange slides with other clubs from time to time, and the writer would be pleased to hear from other Secretaries on this point.

In view of the fact that we have, perhaps, the grandest scenery on earth right at our doors, it is expected that the Colorado Camera Club will be able to send out some most interesting slides.

H. S. Bellsmith,
Corresponding Secretary.

THE PHOTOGRAPHIC SOCIETY OF PHILADELPHIA.

A STATED meeting of the Society was held Wednesday evening, February 10, 1892, the President, Mr. John G. Bullock, in the chair.

The Board of Directors reported the election of the following active members: Milton Powell, M.D., Harry W. Hazard, Herbert Allibone North, and H. B. Yerger.

The exhibition of the work of members in competition for the honor pictures for 1891 was opened on the evening of January 21st, 109 prints being exhibited. The votes were counted at the Conversational Meeting, January 28th, resulting in the selection of the following pictures:

"On the Blue Juniata," by William H. Rau.

"Navigation," by Robert S. Redfield.

"The Loen-Vand, Norway," by Charles L. Mitchell, M.D.

"The Village Mill," by Charles H. Miller.

At the Conversational Meeting, January 27th, American Interchange lantern slides from Albany and Syracuse were shown.

An illustrated lecture on "Switzerland—The High Alps," was given in the exhibition room on the evening of February 3d by Dr. Charles L. Mitchell. The lecture was complimentary to members and their friends, and was largely attended by a most appreciative audience.

The special reception committee reported that the new quarters were formally opened by a reception to members and their friends on the evening of January 21st.

The Secretary announced that Mr. Ives had presented to the Society, for its library, a "Catalogue of the Exhibition Illustrating the Technical Methods of the Reproductive Arts, at the Museum of Fine Arts, Boston." Though nominally only a catalogue, this book contained a great deal of information in connection with the reproductive process. (See editorial in February 26th issue of THE PHOTOGRAPHIC TIMES.)

The Chairman stated that the committee appointed in April of last year to take into consideration the feasibility of starting a movement looking towards a uniform method of marking the sensitiveness of dry-plates, for various good reasons had not been able to organize; but a week ago the committee had been reorganized, and it was proposed to begin work in earnest.

Dr. Ellerslie Wallace next read a paper on "The Fading of Silver Prints," which was discussed at length by the members.

Dr. Mitchell took exception to the reader's statement in regard to gelatine as a mountant. He was not quite so ready to ascribe the fading of silver prints to this source. It seemed to him that if gelatine possessed this property, it would affect the integrity of every emulsion that was made, not only for negative plates but also the different forms of gelatine emulsions now prepared for aristotypes. If the mount was made with a common grade of gelatines there might be injurious chemical substances in it, because it was well known that acid was used as a necessary adjunct in its preparation; but he very much doubted whether good gelatine would have the effect ascribed to it by Dr. Wallace.

Another probable cause for the fading of prints was that they were not fixed long enough. It was much more important than washing. It was a very common habit to take a *negative* out of the fixing bath as soon as the color disappeared, thinking that it was fixed, but that was a wrong impression. It should either be allowed to remain five or ten minutes longer in the hypo, or be entirely transferred to a fresh fixing bath. He fully believed a good deal of the trouble in regard to the permanency of silver prints was due to insufficient fixing.

He would add, in conclusion, that he agreed with Dr. Wallace in regard to the injurious effect of extensive washing. It tended to destroy the character of the image and also probably affected the permanency of the photograph.

Mr. Carbutt stated that during the Centennial he had quite a number of Irish views, the majority of which he mounted on thin glass plates with gelatine. It struck him that possibly the gelatine might absorb moisture, so he varnished the plates with collodion. When he last saw them they were unchanged. He had pictures purchased in Paris in 1862 which when last seen bore no traces of fading. Some of his own make, made in Chicago in 1862 or 1863, were just as fresh now as the day they were made—made, too, in the ordinary routine of gallery work, using carefully the best materials to be had.

Dr. Wallace asked whether the gelatine contained any glycerine. In the experiment he referred to the gelatine contained a proportion of glycerine.

Mr. Carbutt said he used no glycerine—only a plain solution of Nelson's gelatine.

Mr. Coates believed the trouble lay in the paper. The manufacture of paper within the last few years had changed very much, and it was hard to tell what they put in papers nowadays—anything up to old boots.

Some of the members referred to Dr. Wallace's remarks in regard to albumenized paper free from smell, stating that they had never come across a paper that did not smell.

Dr. Wallace said he could recollect the time when they could obtain from several dealers albumen paper free from smell—had no odor at all. He was in a position to know that prints made on paper free from smell would last fully as well as those made on the foul stuff made nowadays. He had been taken into a factory here where the albumenized trays smelt as sweet as though there had only been hot water in the pans. He knew that paper could be made not to smell. It would not decompose after being put on the paper, unless it were put in a damp place.

Mr. Cheyney said that about fifteen years age he used to make a good many prints, and often had to make his paper himself; but even then, after being made a little while, it would begin to smell. He never in his life got any that did not smell.

Mr. Wood humorously remarked that if he came across any paper that did not smell he should think there was something the matter with his nose. (Laughter.)

Dr. Wallace stated that he would say a word on the other side. A batch of paper he had once, as pure and sweet as so much writing paper, turned out to be the worst he ever had in his life. It was unevenly albumenized, but *it did not smell.*

Dr. Mitchell had seen it stated that in order to properly albumenize paper it should have undergone a certain amount of fermentation, and consequently decomposed to a certain extent. However, he had no practical experience in the matter himself.

Mr. C. W. Miller called the attention of the members to Mr. A. L. Henderson's communication in the Bulletin of the French Society, wherein he stated that it was impossible to make a good emulsion with nitrate of silver and gelatine *prepared together.* During the process the nitrate of silver and gelatine should never be allowed to come together, otherwise green and red fog would inevitably ensue. This does not refer to boiled emulsion, but digestion in twenty-four hours.

Mr. Carbutt said he had had a little experience in making emulsions and did not agree with Mr. Henderson's views. He had tried his method, and found it impossible to make a rapid emulsion with it. A good emulsion could be made with the nitrate of silver in contact with gelatine, and he had accomplished it in that way.

The Editorial Table.

Photo Engraving. By Carl Schraubstaedter, Jr., St. Louis, Mo.

This is a practical treatise on the art of etching in zinc and copper.

The book is written by a man whose daily experience in laboratory and shop work enables him to treat the subject in a practical way. Details in manipulation, not mentioned in other books on the same subject, are minutely given here, and a résumé of the whole operation and process is so clearly and comprehensively given, that the tyro, or one entirely ignorant of the art will derive much benefit from it.

Half-tone engraving receives the same attention as line work or stipple; there are also short chapters on the wash-out and the swelled gelatine method.

The book is accompanied by a little pamphlet by the same author: "How to Prepare Copy for Photo-Engraving."

Should a second edition of the main work be issued, we recommend to attach to it this pamphlet as an appendix. Judging from the great usefulness of the book, a second edition of it will necessarily appear soon.

We recommend it to all interested in photo-engraving, and especially to those who are intending to go into the business.

We have received from Rupert Stearn, of Tunbridge Wells, Eng., a number of beautitul English photographs. These photographs are of various subjects; principally of cathedrals and castles; and all are of a uniformly high degree of merit. We are pleased to testify to the skill of the photographer, as evinced in these views, who has an advertisement in this magazine, expressing a desire to make an American engagement. No one can make a mistake who employs Mr. Stearn as operator, if these photographs are a fair sample of his work.

With the compliments of Biely Bros., photographers of West Union, O., we have received a handsome 6½ x 8½ Omega print of a winter scene.

"The Tripod" is the name of a little photographic periodical published by O. H. Peck, the photographic merchant of Minneapolis. The first issue is dated February 10th, and is devoted principally to "Wants and Bargains."

"St. Blaise" Photographed.—THE PHOTOGRAPHIC TIMES recently presented its readers with a capital photogravure of St. Blaise, the $100,000 stallion. The color of the picture is said to suggest the color of the horse, so that it is as satisfactory a representation as could possibly be obtained by photographic means.—*The British Journal of Photography.*

Mr. J. H. Burkholder, of Tiffin, O., is an artistic photographer. He is especially successful with children. We have recently received a number of cabinet photographs from him, which are equal to the best we have seen of their kind. We congratulate Mr. Burkholder on his success.

Queries and Answers.

222 F. W.—On page 130 of the "Times Annual" for '91, are instructions for "Purifying the Printing Bath," and on page 129, "Annual for '92," are instructions entitled "Reduction of Silver from old Silver Baths.' Now I have a silver bath of about 3 pints which I have used at intervals of from one to twenty-one days for some twenty-six months, and upon which I have sensitized (by adding more silver nitrate and water) 10 or 12 dozen sheets of albumen paper, and I wish to purify the bath for future use, as it contains albumen and dirt. This dirt is precipitated in silver bath when I add nitrate of silver crystals to it, or when I dissolve the crystals in clear water it is just the same. This dirt is a nuisance, and I don't know how to get rid of it without loss of silver. Does all nitrate of silver which the stock dealers furnish us with contain this foreign matter?

Question 1. Which of the methods is the best to employ in the hands of one who knows very little about chemistry, only by instructions laid down to follow as in the above? 2. Is carbonate of silver produced or formed by adding saturated solution of carbonate of sodium (sal soda) to the silver bath in excess of what will be used or needed to neutralize the acid the bath contains? 3. When the silver bath has been neutralized with ammonia previously, can it be neutralized with carbonate soda without injury to the resulting print? 4. Can you tell me what color Mr. Gutekunst's studios are painted, both opposite the top and side lights? I would like to get "light" from some of the best sources before painting mine. 5. Is the negative, or only the print, required to reproduce pictures by the different mechanical printing processes?

222 *Answer.*—We can assure our correspondent that the nitrate of silver supplied to practitioners by respectable houses is of the utmost purity. In regard to the dirty deposit formed in the solution on addition of silver crystals he does not express himself very clearly, and we think the water must be impure or the nitrate of bad quality if such precipitate is formed unless the momentum of the crystals falling to the bottom of the jar stirs up the precipitate that has formed in the old bath and settled down in course of time. Evidently no appreciable loss of silver is to be feared.

1. The two methods spoken of are entirely different from each other. Mr. J. R. Swain fuses his bath, destroying, by the great heat employed, all organic matter, converting it into carbon, and it is filtered out in subsequent operations; he evaporates all ammoniacal salts present, but cannot possibly destroy metallic matter, sodium or potassium perhaps, which in form of a salt combined with carbonic or other acid might have found their way into it. The method is most generally employed by practical photographers. With Mr. C. L. Lochman's method the result is finally pure nitrate of silver. He precipitates the precious metal in the form of carbonate of silver, washes the precipitate perfectly well, and by adding nitric acid sufficient to combine thoroughly with the carbonate of silver, has the nitrate in perfect purity. Either of the operations requires a good deal of attention and circumspection, but were it the object to obtain chemically pure nitrate in solution, we would prefer Mr. Lochman's method. 2. It is. 3. You can do so with perfect safety. Should you object to any ammoniacal salt, possibly present, heat the bath to boiling point before the addition of sodium carbonate. 4. Mr. Gutekunst's studios are painted with a light neutral gray. 5. For photogravures, phototypes, or lichtdrucks, for photo-lithographs the negative is wanted; for photo-engraving in line, stipple, or half-tone, a good print will do, but the print MUST be good, clear, brilliant, and not of too high gloss.



Specimen of the New York Photo-Electrotype Company's New Process of Photo-Engraving for Newspapers.



Specimen of the New York Photo-Electrotype Company's New Process of Photo-Engraving for Newspapers.

THE PHOTOGRAPHIC TIMES.

AN ILLUSTRATED WEEKLY JOURNAL DEVOTED TO THE ART, SCIENCE AND ADVANCEMENT OF PHOTOGRAPHY.

Issued every Friday.

W. I. LINCOLN ADAMS, Editor.

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THE PHOTOGRAPHIC TIMES PUBLISHING ASSOCIATION,
423 Broome Street, New York.

Commercial Intelligence.

A Letter to Mr. Carbutt from a Lady Amateur.—. . . I have given your Eclipse celluloid films a most careful trial and am so pleased with them that I mean to use no other. It gives me great pleasure to write you this, as well on my part to find films so good. I much prefer films to plates, as I travel much, and weight is a great consideration. Enclosed are two pictures done on your films. Yours very truly, * * *

Even in Africa.—Our publishers recently received a subscription from a mission in Liberia, Africa. THE PHOTOGRAPHIC TIMES is actually read now in every civilized country of the globe.

"**I have been** a reader for several years of your magazine; and from it I have gathered most of my photographic knowledge. 'Long may she wave.' Allow me to take this opportunity, also, of expressing my delight in your beautiful 'Annual.' It is simply immense." Thus writes MR. L. M. MCCORMICK, of Oberlin, O.

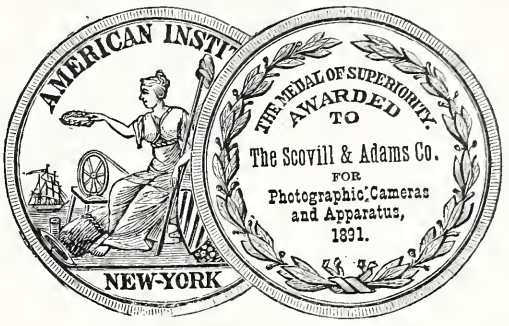
"**It is indeed a charming book.** I think the illustrations are at least as good, while the letterpress is decidedly better, than in any former volume," writes W. JEROME HARRISON.

"**I am convinced** from my present knowledge that the Waterbury is the very best medium price box on the market. I have seen something done by them not equaled by any other hand camera," writes Mr. French, of Pittsfield, Mass.

"**Flash-Lights and How to Make Them,**" by Louis Clarence Bennett, is an excellent little treatise on flash-light work. It is practical and fully illustrated, and is sold for only 50 cents per copy.

Lantern-Slides, and How to Make Them, by N. R. Dresser, is the very latest. Only 25 cents. Examine a copy.

The Special Bronze Medal of Superiority, awarded by the American Institute to The Scovill & Adams Co. for photographic cameras and apparatus, has been deliv



ered; and it has been added to the large collection of silver medals awarded by this and other institutions to The Scovill & Adams Co.

The readers of THE PHOTOGRAPHIC TIMES seem to have become more and more interested in the photogravure illustrations which embellish the magazine as time goes on.

Photogravure, as a high-grade process for reproducing photographic negatives, is, indeed, becoming more popular in artistic circles in general. The set of photographic studies including the following pictures:

" Dawn and Sunset "..... H. P. Robinson
" Childhood "..... H. McMichael
" As Age Steals On "..... J. F. Ryder
" A Portrait Study "..... B, J. Falk
" Solid Comfort "..... John E. Dumont
" Ophelia "..... H. P. Robinson
" No Barrier "..... F. A. Jackson
" El Capitan "..... W. H. Jackson
" Still Waters "..... J. J. Montgomery
" Surf "..... James F. Cowee
" A Horse Race "..... George Barker
" Hi, Mister, may we have some Apples?"..... Geo. B. Wood

which has recently been advertised in these columns, has gone off so fast that a second edition of the collection has been necessary. They are printed on Japan paper, mounted on heavy paper as before, size 11 x 14 inches, and are sent in an ornamental portfolio, by mail, post paid, on receipt of $3.

The Scovill & Adams' Plain Felt Background, recently introduced, is a great boon to all photographers, both professional and amateur.

It is made of strong, thick and even stock, and is of an agreeable neutral drab color. It is especially suitable for vignetting. The texture of the cloth absorbs instead of reflecting light, and thus produces soft effects, and agreeable depth in the print. The liability of defacement by water stains is obviated.

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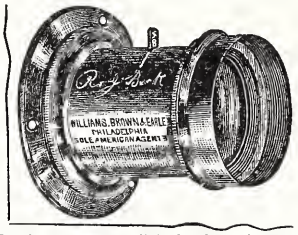
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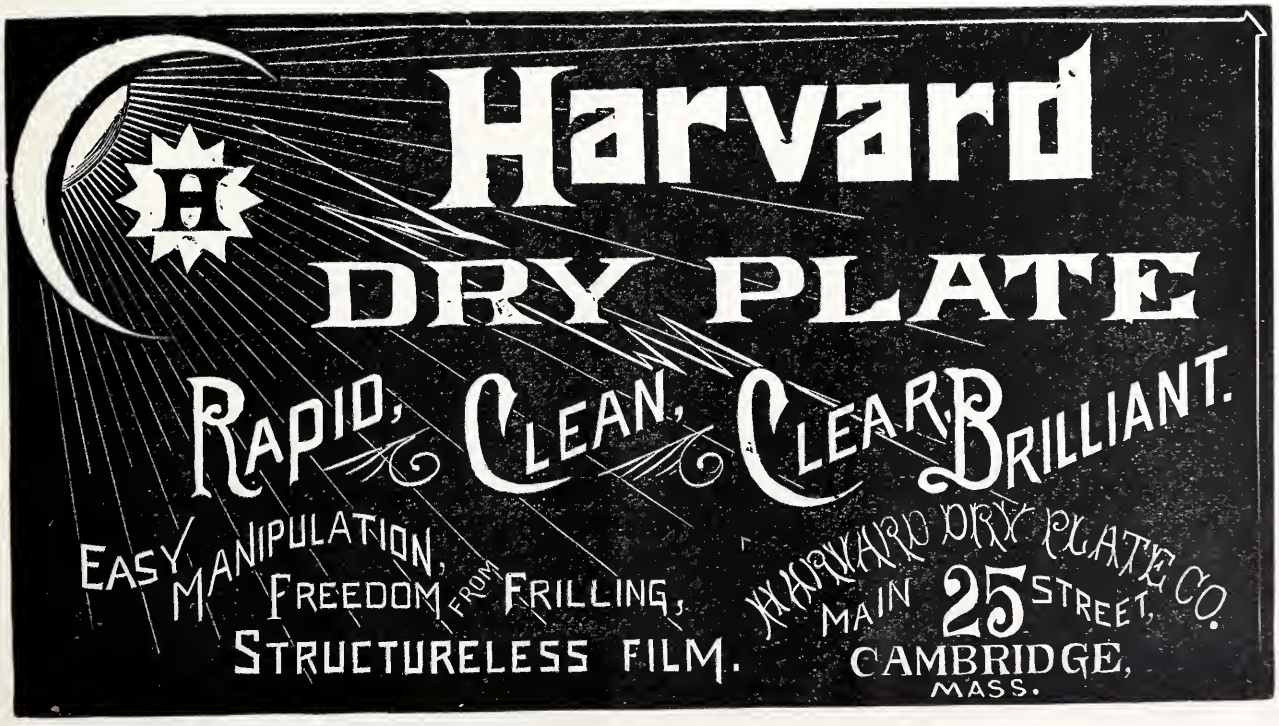
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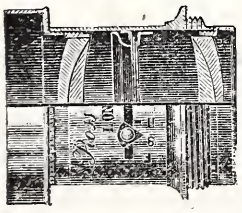
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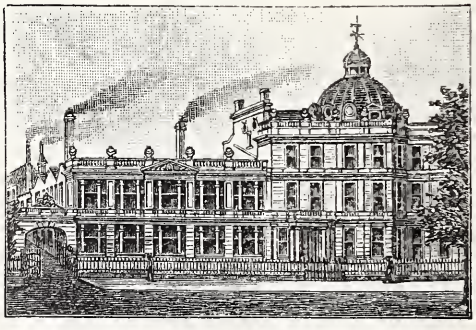
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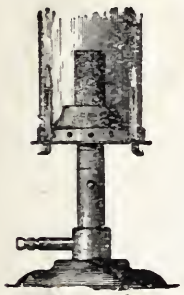
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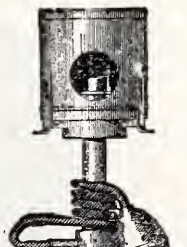
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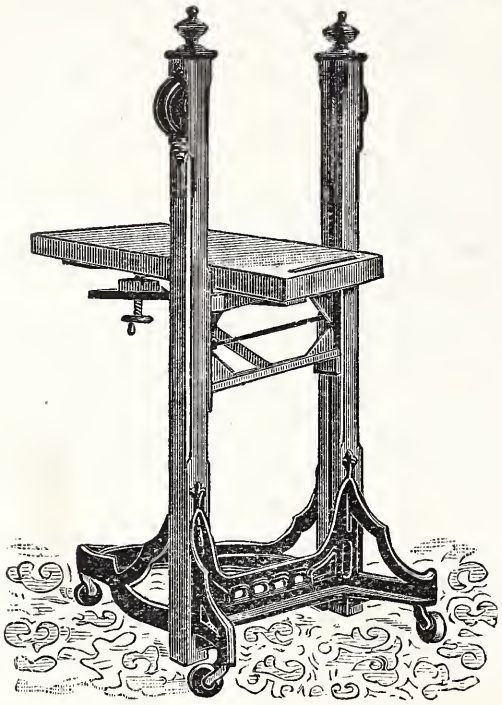
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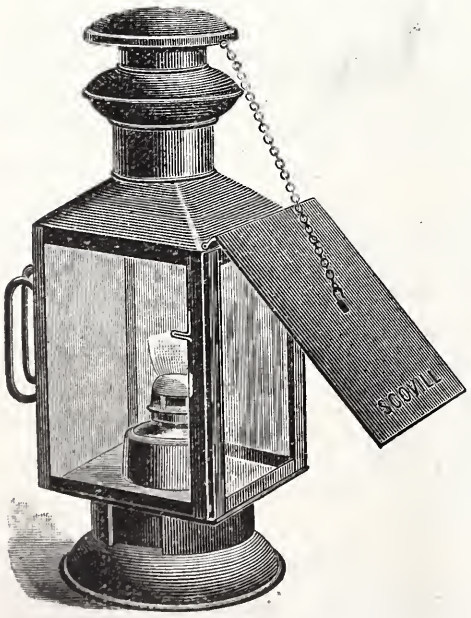
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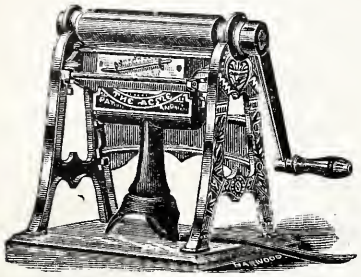


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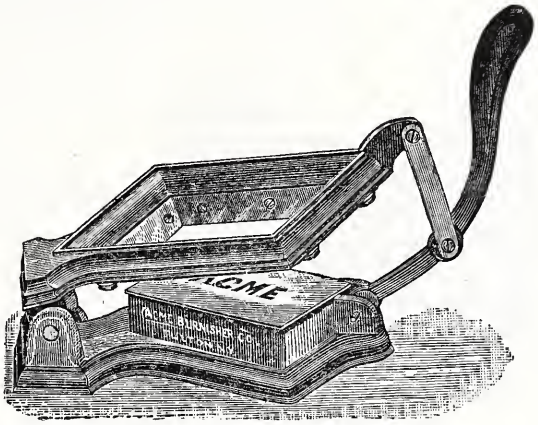
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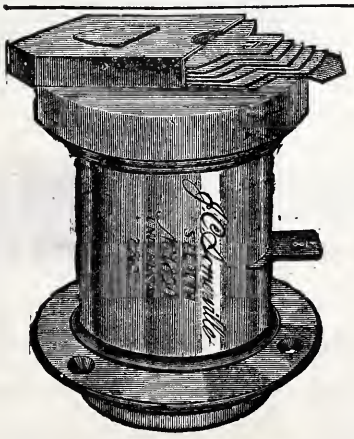
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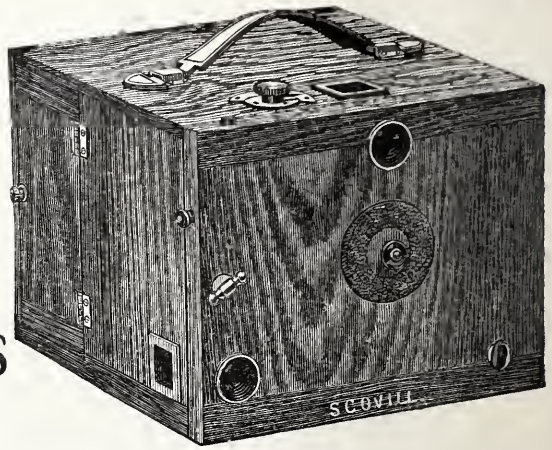


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SIR EDWIN ARNOLD.

THE PHOTOGRAPHIC TIMES.

VOL. XXII. FRIDAY, MARCH 11, 1892. No. 547.

SIR EDWIN ARNOLD.

WE take pleasure in presenting our readers this week with an admirable likeness of Sir Edwin Arnold, the English poet, traveler and journalist.

Sir Edwin has recently made a lecture tour through the United States, and undoubtedly many of our readers have heard him read his own poems. They especially will appreciate this speaking likeness.

To those who are making a special study of portraiture, the simplicity of pose and the agreeable light effect of this picture will prove instructive as example. Both the negative and the phototype are by Mr. Gutekunst, of Philadelphia.

ON THE PRINTING BY DEVELOPMENT ON ARISTOTYPE PAPER AND ON THE FADING OF NEGATIVES.

MR. R. E. LIESEGANG states that positive proofs can be rapidly obtained by development on aristotype paper, that prepared with a gelatino-silver chloride emulsion. It suffices to expose until the image is faintly visible, and then to continue the reductive action of light by a developing solution simply consisting of a saturated aqueous solution of gallic acid, to which we advise to add a small quantity, from 1 to 2 per 100, of lime acetate. The image develops with a blue-black tone which often turns brown sepia in the fixing bath.

The paper should not be washed before developing, the silver nitrate which the emulsion contains in excess being a *sine qua non* for the development. And before fixing it is necessary, in order to avoid the sulphuration of the metallic silver, which forms the image, to well wash the paper and to neutralize its acidity by adding a little sodium bicarbonate to the first washing water. One knows that both collodion and gelatine emulsions are prepared for the printing process by the continuous action of light with a certain dose of citric or other acids to prevent for a long time the reduction of silver nitrate when in presence of organic matters.

If one objects to the sepia tone, the image can be toned, as it is termed, by gold or platinum before fixing.

Pyrogallol in very small quantities can be added to the gallic solution. Hydroquinone will very likely make a good developer for the purpose in question.

Aristotype paper prepared with a collodio-silver chloride emulsion after the manner of Mr. Warthon Simpson, the inventor of the process (1865), which is also that we employ at present, has for a long time been used to print both by the printing-out and developing methods, giving by the latter, according to our experience, finer results; the whites are whiter, for the paper keeps exceedingly well, and in reason of the thinness and little spongy nature of the nitro-cellulose (pyroxyline) which forms the medium holding the silver salts, the elimination of the thiosulphates is facilitated, which insures greater permanency.

WE hear of many complaints made about the fading of gelatine negatives intensified by mercury salts. This should have been expected. There is a long time since we pointed out the instability of the mercurous compounds, and, as a consequence, the inevitable fading of the image.

Not having now in our possession any faded negative, we would be much obliged to our readers if they would have the kindness to send us some of them, in order by experimenting to find out which is the best process to revive the image for printing purposes.

As to the remedies, we will suggest the following, which, although not having tried them for the reason above stated, we warrant not to be liable to spoil the negatives.

The intensification of weak negatives consists most generally to treat them by mercuric chloride, which gives rise to the formation of mercurous

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chloride (calomel) and silver chloride, and, perhaps, to traces of metallic mercury. This complex compound when acted on by diluted aqueous ammonia, 1 : 15, forms with calomel dimercurous ammonium chloride, which is black, and the silver chloride remains unaltered.

Hence, in the faded image the latter salt, which is stable, and, when in presence of a mercury salt, quite insensitive to the luminous influence, exists together with some mercurous and mercuric compounds. Now, these mercury and silver salts can be converted by chemical means into others of a little actinic color, which will consequently intensify the image, as it is termed in our art.

For this purpose the negative may be treated by a diluted solution of ammonium sulphide, which forms a black compound of mercury and silver sulphide, or by ammonium sulphantimonate, which gives a brown-red compound consisting of silver and mercurous sulphantimonates.

Now, as the opacity of these compounds necessarily depends on the more or advanced stage of fading, we think that it will be better on the whole to intensify by development, which method has besides the advantage of being under control. For this purpose we would first carefully wash the cliché, then treat it by weak hydrochloric acid (clearing solution), and, after rinsing and drying, develop with a feeble hydroquinone developer without bromide, otherwise operating in the usual manner.

PHOTOGRAPHY ABROAD.

Keeping Qualities of Emulsions.

From his observations on the keeping properties of gelatine silver bromide plates, Mr. A. Pricam came to the conclusion that the unalterability is in the inverse ratio of the sensitiveness of the emulsion.

Extra rapid plates have a tendency to fog in a period after which less sensitive plates do not show any diminution in their original qualities: the formation of black edges more rapidly takes place with the former than with the latter. Dry collodion plates keep wonderfully well: they are by far less sensitive than the slower gelatine plates.

Mr. Pricam states that having tried dry collodion plates prepared since seventeen years, he obtained as good results by the exposure time he used to give in 1874, that is, thirty seconds, as the day he bought them from the "Liverpool Dry-Plates and Printing Company"; the only difference being an extreme tendency of the film to slip from the plates.

The writer of this article can corroborate the statement of Mr. Pricam about collodion plates. As to the gelatino-bromide plates he found that "Kingston special plates," bought in 1880 and kept for testing, fogged after six years' standing.

Emulsion for Diapositives.

The *Photographic News* publishes the following process to prepare an emulsion for diapositives:

Dissolve separately in 1,000 parts of water

Gelatine	50 parts
Silver nitrate	15 parts
Auric chloride	5 parts
Citric acid	10 parts

To the gelatine solution add the silver nitrate, then the auric chloride, and lastly the acid. If the emulsion turns red it is of no importance. It is useless to wash the emulsion.

The plates should be printed very deep in the printing-frame. If the tone is yellow instead of black increase the proportion of citric acid.

The proof can be toned in a bath of gold sulphocyanate. One fixes in a solution of sodium hyposulphite (thiosulphate) and, after washing, strengthens the gelatine film by alum.

Photographing Clouds.

It is perfectly possible to photograph even the most light clouds, the cirrus, for example, by intercepting the blue rays by an absorbent which let pass only the yellow-green reflected by white clouds.

The absorbent devised by Dr. Neuhauss, who made many experiments in the photography of clouds, is effective. It is compounded thus:

Cupric nitrate, dry	160 grams
Chromic acid, pure	14 grams
Water, to make up	250 ccm.

The layer of this liquid should have a thickness of 1 centimeter.

The following solution absorbs all the blue and violet rays, and can be used in thin layers:

Cupric sulphate	175 grams
Potassic bichromate	17 grams
Sulphuric acid	2 ccm.
Water	100 to 500 ccm.

Cyanotypes with Black Tones.

Researches are constantly made abroad to find a simple, economical and reliable process superseding, or at least equaling, the printing-out silver chloride, and obtain permanent photographs. The following is not exactly new. We do not know the name of its author.

Dissolve separately, each in ten parts of water, one part of

Ammonio-ferric citrate.
Potassic ferricyanate.
Potassic bichromate.

For use mix by equal volumes and add a crystal or two of oxalic acid. On this bath float the paper (strongly sized) for a moment and hang it up to dry in the dark-room. It will keep for a few months, and, as usual with all the ferric preparations, it will give better and more brilliant images with pure whites if employed when freshly made.

The paper is exposed to the action of light until the shadows are blue, when it is washed first in water slightly acidified with oxalic acid, 1 : 30, then in pure water, and this done immersed in a solution of ammonium carbonate (not too strong), and then, without washing, in a solution of tannin, 2 : 100.

Lined Screens.

In his review of "Photography in Germany," published in the *Photographic News*, Mr. Hermann E. Gunther describes a method of making lined screens for photo-etchings which L. E. Levy and F. O. Mörch and other authorities consider as the best.

A glass plate is placed in a horizontal position on a hot metal plate and uniformly rubbed with wax. It is necessary that the metal plate be sufficiently hot to melt the wax, so that it easily flows over. When an even coating is obtained, the plate is allowed to cool down, then coated with the finest quality of lamp black, until an opaque covering has been obtained. The plate will then be ready for being lined, the lines which are drawn representing the opaque parts of the finished screen. For lining a round-edged diamond may be used advantageously. It should be remembered that the opaque lines should be considerably broader than the transparent ones. According to Mörch sufficiently fine results may be expected with from 40 to 50 clear lines to the centimetre, with which from 40 to 50 opaque lines of double the breadth are alternating. This corresponds to about from 115 to 124 lines to the inch. After the lines have been drawn, the glass plate is etched with fluorhydric acid, and after the wax film has been washed off, the etched lines are vigorously rubbed with printing ink. In order to protect the screens from damage they should be coated with a layer of gelatine solution, which should be very thin and should dry with a gloss, and, when dried, hardened in an alum bath, then washed in water, finally placed in water to which some glycerine has been added, and allowed to dry. The lining should be done by means of a ruling machine, which can be purchased from any manufacturer of lithographic apparatus, and, as already indicated, a round-edged diamond is the best tool to use for the purpose.

PHOTOGRAPHY FOR BEGINNERS.

(*Continued from page* 108.)

In the Field.

Having carefully examined our apparatus, let us now wander afield and try our skill at making pictures.

What shall we photograph first? Let us look about us, and see what most attracts our attention. There are pretty subjects on every hand, and many of them will make beautiful photographs, though we cannot "take" them all at this time of day, with the light falling as it does. We can only photograph those subjects which lie in front of us when our back is turned toward the sun. That little meadow brook straying along by the old tumble-down, vine-covered pasture fence yonder makes a pretty picture, and one that is easy to photograph. Let us set up our camera and look at it through our lens.

First, we must unstrap the tripod and adjust it. This is easily done by setting it up and then spreading the legs so that one comes exactly in front of us and one on each side. Now take the camera from its carrying case, and secure it firmly on the tripod by means of the "set" screw, which protrudes up through the tripod top and into the bottom or "bed" of the camera. Then adjust the lens (which comes packed reversed in the camera) so that it faces outwards from the front-board, right side up. Our apparatus is now ready for use; but before we can make our photograph we must "focus" the image upon the ground glass of the camera.

This is done by excluding all surrounding light by means of a black cloth thrown over the operator's head, and held closely around the camera and underneath it. Take the cap off from the lens, and you see but a blurred image, upside down, on the ground glass focusing screen in front of your face. Move the glass a little nearer the lens, and the image may become somewhat more distinct. If it does not, you must draw the glass toward yourself and away from the lens, when the picture will surely grow clearer. At a certain point the image will appear most clear, or "sharp," as photographers say. If you go beyond this point the picture will grow indistinct, and if you do not reach it the image will continue to be dim; so that it is

easy to determine just where the ground glass should be secured, for there the picture is clearest. This point is called the "focus," and here the frame which carries the ground glass, and, later, the plate-holder containing the sensitive plate, is fastened by means of a little thumbscrew. Having accomplished so much, we may proceed to examine the inverted picture on the ground glass as to its artistic composition.

On looking at the subject we have chosen, on the ground glass, we find that we can decidedly improve our picture. We should have more foreground and not nearly so much sky, and the pretty little clump of trees on the extreme right of our picture should be brought into view, in order to balance the old fence with its weeds and vines on the left. We take in more foreground and shut out more sky by lowering the front board which bears our lens. The graceful elm trees are brought into our picture by simply turning the camera a little to the right, on the tripod, without moving it in any other way.

We are now ready to make the "exposure." First we recap the lens, and then in the place which the ground glass occupied we fasten one of our plate-holders, which was filled with two plates in the dark room (one on each side), and throw our focusing cloth over the camera to exclude any light which might leak in. On such a bright morning as this, with the medium-sized aperture in our landscape lens, and a sensitive plate in our plate-holder, four seconds will be ample time to sufficiently impress the image of the beautiful picture before us on our plate in the camera. In timing an exposure I find it easier to count double the number quite rapidly than to count the exact number of seconds more slowly. (One can easily determine just how fast one should count by timing oneself with a watch.) Draw the slide from the plate-holder which is nearest the lens, so that the plate within has nothing between it and the subject except the cap on the lens. When this is taken off, the light transmits our picture through the lens and on to the sensitive plate. As you remove the cap from the lens, carefully, so as not to jar the camera, count "one," and place it over the lens again when you say "eight." The slide should now be re-inserted in the plate-holder, but this time with the silicate-coated side out, so that you can write on it with a slate pencil the name of your subject, the length of exposure, the time of day, the date, and any other particulars concerning the picture which you think it may be of interest to preserve.

When one is not quite sure how long to expose a plate on a certain subject, it is well to use a second plate on the same subject, giving it a different time. longer or shorter, and note in developing afterward which plate makes the best negative. Thus one learns by experience how long a time to give one's subjects under certain conditions of light, and a guide is formed for future trials

But we do not need to expose a second plate on this view, as it is quite certain four seconds will be enough ; and if it should prove too long a time, we can "restrain" the development by means which we shall learn next week when we go into the dark-room. Let us continue our rambles in search of the picturesque, and expose the five remaining plates which we have in our holders. We must remember, however, that a photograph should only be made with the sun shining from behind the camera or at one side. We cannot photograph successfully with it shining directly into our lens; at least, in the beginning. And we should choose the simplest subjects at first—landscapes and other stationary objects. We shall then be the better prepared to photograph more difficult subjects, as they present themselves in the future.

AMATEUR PHOTOGRAPHY AT THE WORLD'S FAIR.

THE matter of an exhibition of photographs to be made by the amateur photographers of the country at the World's Fair seems thus far to have received very little attention. This is more noticeable in view of the large amount of very artistic work produced in the different journals, and at the annual exhibitions of the societies and art clubs of our principal cities. Such an exhibition would attract widespread attention, and would arouse the interest of visitors, both foreign and native, in the artistic natural features of our country. It would only be necessary for the clubs or societies of the large cities to take the matter in hand and announce their willingness to handle and arrange the display from their States, and the work would come in without further invitation. It is not expected that the clubs would necessarily co-operate to form a general exhibit, but the clubs of each State could join hands with the State Commissioners to the World's Fair, and thus form an artistic addition to the States' display. With a view to unanimity it would be well for the clubs now composing the "Interchange Societies" to take the initiative, and, after maturing plans, to issue a general circular letter through the various journals, calling upon the amateurs to correspond with the local organization, which could then forward the

necessary information as to size and character of print, and, if it is desirable to have them mounted, the size and kind of card to be used. The limit of time could be set and the contributors notified, that the pictures may be received and selected by a competent committee appointed for the purpose, before handing them over to the Fair Commissioners. The entire exhibition could be made from negatives taken during the past one or two years, of local scenery and objects of interest in the neighborhood of the photographer, thus entailing very little expense other than for albumen paper and card mounts. In the large cities the clubs could divide the work among the members and unattached amateurs desiring to contribute, and thus an exhibition consisting of one hundred or more pictures would be but a light burden on any of the individual contributors. A display of this kind by each State would be of great interest not only to foreign visitors, but to those of our own country, who would in this way become practically acquainted with much that is beautiful and interesting on our Continent. So far as it relates to cities it could be made a valuable guide to the most interesting features of the locality it represents. A map of the city could be hung up adjoining, and the buildings and streets photographed, marked in red, in order, for reference. Thus a better idea of the arrangement of the features of note in our municipalities could be given. The time is short, and, if the plan is to be carried out, the work must be done during the coming season. I therefore call upon the amateur fraternity to take up the idea at once. Being worth doing, let it be done well. Let the officers of the clubs consult with the various State Commissioners and arrange the matter, so that early in the spring the different photographic and sporting journals can announce the details, and the work may be in the hands of the Commissioners a year hence.

Robert E. M. Bain.

DUPLICATE ORDERS.

THERE are about as many systems of conducting the photographic business as there are photographic studios, if systems you choose to call them. How many of you have seen a system of taking (or registering) duplicate orders in a photographic studio that could not be improved?

A few years ago the idea struck me of the following form, printed in small (nearly square) pieces of paper and blocked suitable for filling out and placing them on file as fast as received:

DUPLICATE ORDER.

Name.....

Neg. No..... No. Or'd.....

Am't Paid..... Am't Due.....

Size and Style.....

Remarks.....

This was, I thought, a decided improvement over our old way. With these little slips there was one great trouble, however. The printers would occasionally lose some of them, or at least they could not always be accounted for. Now, I finally devised a scheme which fully overcame all this disappearing of the little "business transactions," or rather "their records." I concluded to have a good rubber stamp made in the above form and printed right in the center of cabinet envelopes. The order is registered on this envelope in the usual way and placed on file. These envelopes go to the negative storeroom, the negatives placed in the envelopes, the negative numbers corresponding with the envelope numbers. It will be seen now that these envelopes are also suitable for the delivery of the finished work, and you have a complete record of the business transaction before you, the amount "paid" and "due" in plain figures. In this way it is certainly a satisfaction to fill duplicate orders.

J. H. Burkholder.

THE CHEMISTRY OF PHOTOGRAPHY.

(*Continued from page* 125.)

CHAPTER IV.—*Continued.*

Objections to this theory are: (1) that by soaking an exposed plate in a solution of bichromate of potash the latent image is *destroyed.* Now, how could the bichromate repair the breaches which Starnes supposes to be made by light in the gelatine?

(2) According to this theory, silver bromide in collodion should be as sensitive to light (or more so) than the same salt embedded in gelatine, for collodion forms a more porous and delicate film than the tough gelatine. Yet the contrary is the case.

(3) The latent image is destroyed by a solution containing bromine. This solution attacks the gelatine; and, under Starnes' theory, one would imagine that it would intensify—so to speak—the action of light, instead of destroying it.

Electrical Theory of the Latent Image.—The idea that electricity might have something to do with the production of the latent image has naturally

occurred to many minds. Its possibility has of late been brought forward by Dr. T. W. Drinkwater; and a series of remarkable experiments by Professor Minchin have also been lately published* which point in the same direction.

An early work of great interest is Becquerel's book, "La Lumière; ses causes et ses effets," written about half-a-century ago.

The researches of the last few years have shown that electricity has a velocity comparable, if not identical, with that of light (186,000 miles per second); and, further, that electricity comes from the sun in company with light. We know, too, that electricity travels in *waves*, just as light is known to do. One of Becquerel's experiments was to coat two silver plates with chloride of silver and place them in a vessel of water, connecting them by wires with a delicate galvanometer.† When *one* of the plates was exposed to light, a current of electricity was invariably produced. Blue and ultra-blue light produced this effect; but not red, yellow or green. Professor Minchin's experiments go much further in the same direction; but the subject is very complex and much yet remains to be done.

Latent Image produced by Pressure—In 1866 Carey Lea observed‡ that when any hard substance was pressed upon, or drawn over, the surface of a film sensitive to light, that an effect was produced which—although quite invisible to the eye—could be "developed" by the same solutions as brought out the latent image produced by exposure to light.

The same effect was investigated by Captain Abney in 1883–4.** If we write upon the surface of dry-plates (of course in ruby light only) with the rounded end of a glass rod, the letters formed will stand out in black when a developer is applied to the plate. Any hard material may be used instead of glass, and the effect is transmitted through paper, if a sheet of that substance be interposed between the rod and the film. The image so formed behaves similarly to the latent image produced by light (being destroyed by potassium bichromate) and is probably identical with it. It appears to lie at the bottom of the film, next the glass.

The recent investigations made by the Belgian chemist, Professor Spring, show that chemical changes are produced in many mixtures when they are submitted to great pressure. And when a sensitive film is submitted to "shearing stress" or pressure, it is probable that a decomposition of the silver haloid is brought about, which is revealed when the film is submitted to the action of a developing solution.

* *Journal of the Camera Club*, for April, 1891.
† An instrument for detecting the occurrence of an electric current.
‡ *British Journal of Photography*, vol. xiii., p. 84.
** *Journal of the Photographic Society of Great Britain.*

Table of Physical Theories concerning the Latent Image.

I.—The Latent Image due to a Molecular Alteration in the Silver Haloid.....	Moser, 1842. Hardwich, 1855.
II.—The Latent Image due to Vibration of Atoms.....	Carey Lea, 1865.
III.—The Latent Image due to Rupture of Gelatine Gasing.....	Starnes, 1883.
IV.—Electrical Theory of the Latent Image.....	Drinkwater, 1888.
V.—A Latent Image can be produced by Pressure.....	Carey Lea, 1866. Abney, 1883.

Summary of the Whole Question of the Latent Image.

The facts point conclusively in the direction of some *chemical* change. Probably the hypothesis of Carey Lea, that the latent image is a molecular combination of the nature of a "lake," accounts better for the observed facts than any other theory.

Some Important Papers on the Nature of the Latent Image.

Photographic News:

1887.—*Hodgkinson, Dr. W. R.*—The Chemistry of the Latent Image; p. 370.

1888.—*Hodgkinson, Dr. W. R.*—Lowest Stages of Combination of Silver; p. 531.

——. Drinkwater, Dr. T. W.—Some Notes on the Nature of the Latent Image; p. 390.

1890.—Spiller, J.—The Chemical Phenomena of Light (Dr. Percy and G. Shaw); p. 256.

—— Meldola, Professor R.—The Photographic Image; pp. 557, 580, 599.

British Journal of Photography:

1887.—*Lea, M. Carey.*—Photo-Salts of Silver; pp. 330, 345, 472, 486, 522.

1888.—*Gifford, H. J.*—Notes on the Nature of the Latent Image; p. 403.

1889.—*Braham, P.*—Light, its Chemical Action; p. 92.

—— *Wiggin,. J. C.*—The Chemistry of Photography; p. 348.

—— *Bedding, T.*—Continuating Action of Light; p. 619.

—— ——— The Negative Image; pp. 684 716, 732, 776.

—— *Lea, M. Carey.*—Allotropic Forms of Silver; pp. 444, 461, 478, 494, 575, 621, 638, 814.

1890. *Hitchcock, R.*—Action of Light on Silver Chloride; pp. 8, 66, 188, 222, 301.

—— *Bothamly, C. H.*—The Latent Photographic Image: pp. 235, 243, 248.

—— *Brebner, H.*—Nature of the Invisible Image; pp. 487, 551, 617, 631, 649, 682.

1891.—*Lea, M. Carey.*—Allotropic Silver; pp. 229, 262, 627, 726.

LEAPER, C. J.—New Theory of the Developable Image; p. 231.

SUTTON'S PHOTOGRAPHIC NOTES, 1856.—*Dr. E. Frankland.*—On the Chemical Changes occurring in Photography; vol. i., Nos. 5, 6, and 7.

CHEMICAL SOCIETY'S QUARTERLY JOURNAL, for 1857.—*Fred. Guthrie.*—On the Action of Light upon Chloride of Silver; vol. x., part i. (Reprinted in *British Journal of Photography* for 1885, p. 393.)

W. Jerome Harrison.

(*To be continued.*)

MISS D. M. SNYDER, of No. 259 Carroll Street, Brooklyn, a graduate of the art school of the G. W. C. A., and a student of Chautauqua School of Photography, has established at her residence a school for instructing in the art of retouching, in crayon and pastel work. She will also retouch negatives for amateurs and professionals.

We wish this enterprising and learned young lady every possible success.

BLISTERS.

MANY remedies have been suggested to prevent blisters on albumen paper, but still they occur in most galleries. There may be some brands of albumen paper peculiarly liable to blister, but I have never had the misfortune to use such.

Most every one has his pet theory in regard to certain causes and effects, and mine in regard to blisters is that most of them are the result of breaking or crumpling the paper some time during the manipulation of the prints.

It matters not if it be done before the paper is silvered. The albumen is liable to be separated from the paper, during the subsequent operations, where the breaks are. Of course it is necessary to take other precautions as well to avoid blisters, but if solutions are kept at a uniform temperature and the prints handled with care there is very little danger.

Most printers have noticed that large prints are most likely to blister—and this goes to prove the theory, because in the washing they are more apt to get damaged.

I have noticed that those who wash prints over night in a tub with the water whirling around have trouble with blister. It is a wonder that albumen paper will stand the treatment it sometimes receives without blistering.

E. B. Luce.

Correspondence.

To the Editor of THE PHOTOGRAPHIC TIMES.

Dear Sir: Your favor of the inst., duly received; also the back number of THE TIMES. Now that I have my TIMES again, I can pardon the error. But how lonesome it was without THE TIMES!

I must thank you for the valued information contained in THE PHOTOGRAPHIC TIMES for 1891, and the "Times Annual" for '92. As a two-solution "brain" developer the most sensitive "p(l)ate" can be worked with them.

Yours truly,

G. G. Bruce.

THORNBURG, IOWA.

Notes and News.

Newcomb & Co., photographers of Salt Lake City, Utah, have dissolved partnership.

J. W. Williams, formerly with The T. H. McCollin Company, but now representing the Eastman Company, called upon us last week.

Messrs. Paine & Williams, photographers of Fort Scott, Kansas, have dissolved partnership. Mr. Paine proceeds with the business.

The John Wilkinson Company sent notice of their removal from their present quarters in Chicago to 83 Randolph Street, the same city, between Dearborn and State streets.

Robert Aucock, the enterprising photographic merchant of Utica, N. Y., issues very convenient descriptions of various lenses for the assistance of buyers. A copy of this useful circular may be obtained by addressing Mr. Aucock.

The California Camera Club gave an exhibition for the benefit of the earthquake sufferers in Japan, Friday evening, February 26th. The subject of the lecture was "Through Japan with a Camera," and the slides exhibited were very interesting.

A Speaking Likeness of Walt Whitman, the "good gray poet," is presented in the issue of the 12th of February, by THE PHOTOGRAPHIC TIMES of New York. It is by Gutekunst, who has produced some of the best likenesses of American celebrities, and it is not only an excellent likeness, but is a highly instructive example of photographic portraiture.—*San Francisco Call.*

The Camera Club of Hartford held its fifth annual exhibition February 23d, 24th, 25th, 26th and 27th, beginning with a private view Monday evening, February 22d, and being made more attractive by the music of the Alpha Banjo, Mandolin and Guitar Club of Springfield.

The illustrated catalogue issued by the club on this occasion is a very interesting publication, reflecting credit on all concerned in its completion.

A New Photographic Light.—A French chemist, M. Villon, claims to have invented a cheap and effective substitute for the rather expensive magnesium light. It is aluminum, which may be utilized by burning in a spirit lamp, or, if a flame of much more intense brilliancy is required, in a coal, gas, or spirit flame supplied with a jet of oxygen. In these it burns without emitting fumes, in which respect it is superior to magnesium. The light given by aluminum has a high actinic power—nearly as high, indeed, as that of magnesium. The most convenient way of obtaining a very intense light, according to M. Villon, is to use a lamp provided with a jet of oxygen at the center of its flame, into which powdered aluminum mixed with a quarter of its weight of lycopodium and a twentieth of its weight of nitrate of ammonium can be projected by means of a tube furnished with an air ball. This gives an exceedingly intense light, without smoke.

Photographing Sound.—M. Leon Esquine, a French-Mexican savant, is said to have perfected recently a marvelous instrument for photographing speech. By speaking into a photophone transmitter, which consists of a highly polished diaphragm reflecting a ray of light, the ray of light itself is set into rapid vibrations, and a photograph is made of the sound of the voice as it travels along a band of sensitized paper. Now comes the most wonderful part of the whole story. If the image of the photographic tracing is projected by means of an electric arc or hydrogen light upon a selenium receiver, the original speech is instantly emitted from the tube of the receiver, and may be heard as plainly as if uttered by a human being in an ordinary tone of voice. If true, this is a most wonderful discovery, as it is evident that there is no limit to the development of this peculiar combination of methods.

Photographing Inside the Body.—Phrenologists have long claimed to be able to ascertain the character of an individual by observing the conformation of the bumps on his skull, but new photography, in conjunction with the electric light, has rendered it possible for a man to know by ocular demonstration the state of his own inside. Inclosed in a cylindrical case provided with two hemispherical shutters and contained in an india-rubber tube, is a small cylindrical camera. In front of the lens are two tiny incandescent lamps, the wires to which, as well as a short pipe from the camera, are carried in an outside casing tube. Simple pressure on a pneumatic ball drives the camera forward in the incasing cylinder, and at the same instant makes the contact for the electric lamps and opens the shutters. By removing the pressure on the ball the camera returns to its place, the lamps go out and the shutters close.—*The Philadelphia Times.*

A SIMPLE PROCESS FOR COLORING PHOTOS.

THE following is a process by which colored photographs can be made without any knowledge of drawing or painting.

Take any unmounted photographic print which it is desired to color, and place it on a pane of glass, the face toward the glass. In this way the image will be seen through the back of the paper.

With an ordinary pencil mark on the back of the print a rough tracing of the outlines of the photograph, marking the places where the colors must afterward be applied. When this tracing has been made, remove the photograph, lay it on blotting paper, and apply the colors to the back of the print. The colors should be spread on in flat tints, it not being necessary to use demi-tints. For example, a flesh tint is put on the face, and black or brown on the hair; if the picture is a landscape, the trees are colored dark green, the sky part blue. It is important to use strong colors, which will show through the paper better. After this operation is finished, and when the colors are dry, the photograph is rendered transparent, as follows:

First prepare the following solution:

Essence of petroleum or benzine	10 parts
White vaseline	1 part

The vaseline is dissolved in the liquid, and then the mixture is ready for use. Then the photograph, which has been colored previously, is placed on some sheets of white paper, and the back of the picture is saturated first, pouring the solution on it, and rubbing with the finger to cause the mixture to penetrate, first the color and then the paper. The print is then turned face upward, and this side is saturated in the same way.

After this operation the paper becomes oily and transparent, and the color begins to show through.

It is left thus to soak for an hour or two, then both faces are rubbed with linen until no oily spots can be seen, when the proof is put on white paper.

The operation is then completed, and the proof has only to be pasted on cardboard, the same as other photographs. But, as the paper is still saturated with vaseline, water paste will not answer, and some kind of varnish will have to be used.

This process of painting, which can be used by any one, gives very beautiful effects.

Colors which are thus applied to the back of a photograph give it a tone of admirable freshness, and the vaseline mixture brings the image out. Besides, as the colors have the thickness of the paper to pass through, they are greatly softened, and thus approach nature. The variations of the tints will be seen, by transparency, when looking at the picture.

As to the colors, any that are at hand can be used, whether water colors or oil colors. The essential point is to choose the most strong colors, rose, green, etc., and to put on only a very thin layer, as otherwise the vaseline cannot pass through it. If oil colors are at hand they will be better, and the result obtained will be much prettier, for they are more striking, and the vaseline passes through them better. Pastels or colored crayons can be used, but oil colors are greatly to be preferred to any others.

If it is desired to save, and not to color, the photograph, its outline can be traced off on ordinary white paper, and the colors applied to the white paper as before described. Then it is only necessary to paste it on the mount behind

the photograph, care being taken to render the latter transparent, and the two must be so placed that their outlines will agree. The effect obtained is the same, and gives very pretty results, not showing in the least how they are done.—*Scientific American.*

Referring to our advertisement of *edition de luxe* copies of "Photographic Times Annual," the *St. Louis and Canadian* for March says: "The author's copy of 'The Photographic Times Annual for 1892,' *edition de luxe*, which the publishers offer for sale for the small sum of $2.50, will make an extremely acceptable present. It is a most beautiful as well as a valuable book, and but few copies of this superb edition are to be had."

An Edition de Luxe.—We have once or twice said that the Americans know how to engrave, and how to get up a book in an attractive form. It is not for us here to speculate as to the causes which have operated to conduce to this, but so it is. Of the various handsome books which America has produced, we question whether any has been issued which surpasses the *edition de luxe* of the last "American Photographic Annual" (Scovill & Adams Company, New York). Special paper, special ink, and special binding, it forms, quite apart from the merits of its contents, a book that in its get-up has never been surpassed.—*The British Journal of Photography.*

INTENSIFICATION AND TONING LANTERN SLIDES.

After the slide is fixed, and washed, and dried, it may sometimes happen that there is a lack of density. It is very convenient to be able to increase this contrast. This is called intensification. In addition to the power of intensifying the deposit, the color of it may be altered. This is called toning.

Intensification.

Attention has been already called to the importance of thoroughly removing all the bromide of silver by leaving the slide long enough in the hyposulphite of soda solution. This is doubly important, if there is a possibility of having to intensify or tone.

Should the slide have been imperfectly fixed, *i. e.*, left an insufficient length of time in the hypo bath, the intensification will be irregular, and stains, which cannot be removed, will certainly be a result. The deposit will not be permanent. On the other hand, if properly fixed and washed, there is little reason to fear any change in the slide.

The best, and at the same time the most easy, method of intensification is as follows: Prepare a saturated solution of bichloride of mercury (this is a very poisonous chemical, and care must be taken to keep it in a place of safety) by dissolving, say, ½ ounce in 10 ounces of hot water. When cold, much of the bichloride will have crystallized out, but the supernatant solution will be ready for use. The slide which it is required to intensify is placed in a clean dish containing sufficient of this solution to cover it. The film should turn white (this is called bleaching), and when it is white right through to the glass, the slide should be removed from the dish and carefully washed. This may be done in day or white light. After washing for ten minutes, place the plate in the hydrokinone developer recommended on page 38, until the white image has once more become dark. Then wash again for ten minutes, and the intensification is complete, and the color of the deposit will be found to be very good. If density is still insufficient this process of intensification may be repeated any number of times until the required density has been obtained. Several colors can be obtained at will by varying the process after bleaching with mercury.

Toning by Intensification.—In order to obtain various tones, the following methods may be adopted after the bleaching operation, and in place of the re-development described above:

No. 1. *Brown Tone.*—After bleaching, well wash the slide and place in the usual 20 per cent. hypo bath. The result will be a brown tone, more or less rich according to the original exposure. The longer the exposure, the redder the tone.

No. 2. *Warm Black.*—In order to obtain this, immerse the slide, after bleaching, in a saturated solution of sulphite of soda. A few drops of ammonia added to the sulphite will yield a purple black tone.

No. 3. *Reddish Brown.*—Immerse in a saturated solution of washing soda. By mixing Nos. 2 and 3 in various proportions, the reader may obtain several other tones for himself.

Toning.

To obtain a purple red, place the dry slide in a sulphocyanide combined fixing and toning bath, such as is recommended for Aristotype prints. The following is a good one:

Purple-Red Toning Bath.

Chloride of gold	1 grain
Sulphocyanide of ammonium	25 grains
Hyposulphite of soda	240
Water	2 ounces

Dissolve the gold in the water and add last.

The slide, when placed in this bath, quickly takes a purple tone. The bath should be prepared twelve hours before required for use.

To obtain a bluish-black color by toning, place a slide in a bath composed of—

Blue-Black Toning Bath.

Sulphocyanide of ammonium	40 grains
Carbonate of sodium	2 grains
Water	4 ounces

1 grain gold dissolved in little water, add last, and at time of using.

When the desired tone is obtained remove the plate from the bath and wash it.

The color or tone given by the above bath may be varied at will by increasing or reducing the amount of sulphocyanide. Increase of sulphocyanide yields bluer tones; decrease tends to blackness. The toning of slides before drying tends to increase the depth of color, the time taken being only from two to three minutes. But if the slides are allowed to dry first, the subsequent toning is slower and more gradual. On the whole, the latter course is to

be preferred if time be no object, as the process may be more carefully watched.

Purple Tones.

Slides may be *developed* to a purple tone by method described on pages 44 and 45.

Various Tones.

Place the slides to be toned in the following solution for one minute:

Sodic sulphite	1 ounce
Sulphuric acid	½ dram
Water	3 ounces

Wash carefully for a few minutes under the tap and then immerse in the following bath:

Nitrate of uranium	15 grains
Water	2 ounces
Methylated spirit	½ ounce
Solution of ferricyanide of potassium a sufficiency.	

The number of drops of the last chemical determines the color of the tone obtained. The action is very quick, and must be carefully watched. Do not add too much of the ferricyanide of potassium to begin with. Tones are given in the following order, viz., brownish black, chocolate, reddish brown, orange. As soon as the desired tone has been obtained, remove the plate *quickly* and wash it under the tap, and let the drying of the slide be performed as quickly as possible. Tones obtained by this method are removed by soaking the toned slide in either liquid ammonia, or a solution of carbonate of soda. The process can thus be repeated if success does not seem to crown one's efforts, or if the desired tone is allowed to pass by before the process is stopped.

Since the first edition of this book was written, considerable attention has been given to uranium toning. The method is an attractive one, for excellent and most charming results can be obtained. Slides developed with ferrous oxalate are difficult to tone, unless great care has been taken to get rid of all traces of iron, which causes irregular blue staining. The best results can be obtained with sulphokinone (or hydrokinone). Give a full exposure in the first instance. The best results are obtained from a plucky slide. As toning slightly increases the density, a *thick* slide will become too dense after toning by this method. A *good* slide will tone to a rich brown tone, a *thin* slide to a reddish color.

The toning bath is made as follows:

Uranium nitrate	20 grains
Acetic acid	½ ounce
Water to	10 ounces
Ferricyanide of potass	20 grains
Acetic acid	½ ounce
Water to	10 ounces

For use mix equal parts of each. The mixed solution will not keep. Place the slide in the mixed solution, rock the dish until the color changes sufficiently, bearing in mind that the subsequent washing very slightly reduces it. It is important that the washing should be carefully and evenly affected, or irregularity of color will result. To make the toning redder, wash the plate after toning, then place it in an acid alum bath.

Alum (saturated solution)	1 ounce
Water	1 ounce
Hydrochloric acid	40 drops

The tone will become redder the longer the slide is left in. If a very rich color be required, the toning should be carried farther in the uranium bath.

To obtain a brick red. After the toning, place the slide in a clean hypo bath for 30 to 40 seconds. Then wash. Too long immersion will reduce the density.—*From Lantern Slides and How to Make Them, by* A. R. Dresser.

THE GREAT EARTHQUAKE IN JAPAN, 1891.

The work which we were promised by Professors Milne and Burton, on the terrible earthquake of last October, is now in the hands of the public. It is a noble volume, printed in luxurious type, on paper of the finest quality, and illustrated by no less than 29 large plates. We doubt whether any volume of such a sumptuous character was ever before compiled and printed within so brief a period of the event it describes. Two months sufficed to collect materials for, illustrate, put into type, and bind a book that might reasonably have been the product of three or four times that interval. Doubtless this remarkable promptness will bring its reward. Public interest in the great earthquake has not yet begun to subside, and every one will be anxious to have a copy of a volume conveying such a vivid impression of the appalling phenomenon. Nor will there be much difficulty in gratifying that desire, for the book has been issued at the remarkably cheap price of 6 yen to subscribers, and 7½ yen to the general public. How any margin of profit is left by such figures, we find difficulty in conceiving. The 29 photographs, if purchased separately, would not be dear at 5 yen; the binding, which is handsome and solid, must have cost about a yen.

What then remains for the printing and paper, to say nothing of booksellers' commission or of remuneration to the authors? However, if Professor Milne and Burton can afford to give us such a book at such a price, we have only to be grateful to them. Professor Milne's letter-press occupies ten pages. Into that short space he has managed to compress a great mass of useful information about earthquakes in general and the Ai-Gi catastrophe in particular. It is interesting to note that the great disturbance, which was destructively felt throughout an area of 4,400 square miles, which made itself plainly perceptible over an extent of 92,000 square miles, and which would have shaken an area of about 400,000 square miles had Japan been surrounded by land instead of water, had its origin in "a basin of palæozoic hills, where there are neither volcanoes nor volcanic rocks." Yet the bed of alluvium filling that basin has frequently been visited by severe shocks. "In 1826, 1827, and 1859, violent disturbances took place there; many ordinary dwellings, storehouses and even mountains suffered; people and animals were killed; rivers were stopped up and floods occasioned."

During recent years the records seem to indicate a gradually increasing frequency of shocks, culminating in the great shake of last October. Thus the numbers of shocks recorded in the district during the six years 1885–90 were 9, 4, 10, 12, 15, and 36, respectively. These were all sufficiently severe to be observed and placed on record by ordinary means. In immediate and alarming proximity to this statement, Professor Milne gives the accurate records taken with seismographs in Tokio during the same

years, the numbers being 51, 55, 80, 101, 115, and 93. Happily the capital seems to have entered the downward grade without experiencing any stupendous calamity like that which capped the growing frequency of the Ai-Gi disturbances. With regard to the plates in this handsome volume, it is perhaps sufficient to say that they are photographs taken for the most part by Professor Burton and reproduced by Mr. Ogawa. Their execution at such hands is necessarily excellent, and we may add that the scenes chosen convey a vivid idea of the great calamity and all its concomitant features. The authors declare that the photographs are "really permanent, in the sense that they will not fade in any length of time." Accompanying each picture is a short description which conveys all the information required for a full understanding of the scene.—*Japan Daily Mail, Jan.* 18*th.*

The Editorial Table.

Lantern Slides and How to Make Them, by A. R. Dresser. New York: Scovill & Adams Co.

This little work by Mr. Dresser is a most useful book. It is written from the worker's standpoint, and is fully practical in every particular. The contents, as given below, gives an idea of the scope of the book; and we also quote a brief passage to give an idea of its style.

Contents.

Chapter I.—Introductory. The Commercial Lantern Plate. Successful Methods. The Exhibiting Lantern Briefly Mentioned.

Chapter II.—Rival Processes of Producing Slides. Apparatus and Methods, Principles, Controlling Exposure. How to vary Results.

Chapter III.—Details of First Method by Contact.

Chapter IV.—The Second Method discussed and described. Apparatus illustrated.

Chapter V.—Combining Clouds and Foregrounds. The Methods. Dodging a Faulty Negative.

Chapter VI.—The Second Method by Artificial Light. Sketch of arrangement of Apparatus.

Chapter VII.—Development. Various Formulæ. Hydrokinone, Pyro, Ferrous Oxalate, their characteristic qualities. Minor Details of Development. Fixation. The Clearing Bath. The Reducing Bath. Purple Tones by direct Development. Advice to the Reader.

Chapter VIII.—Intensification and Toning defined. Method of Intensification. Methods of Toning. Purple Red. Toning Blue-Black and various colors.

Chapter IX.—Summing Up. Making the Slides—mounting them. Care required. Varnishing. The Author says "Good-bye."

Lantern Slides by Contact—The Practice.

Having thus explained the principles upon which the printing exposure must be made. I shall now sketch out the general practice of making a lantern-slide by contact. Suppose that from a quarter-plate negative it is required to make a slide. Examine the negative to see whether it is very dense, or the reverse. Let us suppose it is of full density. Carefully polish the back of negative. If there are any clear spots in the film, fill them with color, using a camel's-hair brush and Indian ink, so as to minimize or do away with their effect, and place the negative film upwards in a printing-frame. Open a box of lantern plates, and having dusted the surface of one, place it film downwards in contact with the negative; a pad of soft *dark* paper upon the plate, and the back of the frame over all, and shut it up. Here, let me observe, that it is almost imperative that each plate and the negative should be dusted with a broad camel's-hair brush before being placed face to face. If neglected, dust spots will surely spoil fifty per cent. of the finished slides. Place the frame opposite your gas jet at 12 inches distance and turn up the gas for 5 seconds by the watch. Turn down the gas and proceed to develop. Full details for development will be found in Chapter VII. It was assumed the negative was of full density; had it been very thin I should have placed it 3 feet from the light and given a corresponding exposure (see *ante*), or if of medium density at 2 feet. If on development the exposure is found to be insufficient or too much, the remedy is obvious—increase or decrease it. If the contrast is insufficient, make the next exposure at a greater distance from the light, equalizing the exposure for the increased distance in accordance with the directions already given. I shall next describe the operations of making lantern-slides by copying through the camera, leaving the question of development for a future chapter. The process of development is identical whether the slide be made by contact or in the camera.

In neat paper covers and envelope, it is sent post-paid to any address for only 25 cents.

Photographic Studies.—A collection of photogravures from the best representative photographic negatives, by leading photographic artists. New York: The Scovill & Adams Co. Second edition.

This collection of artistic photographs has gone into a second edition. The collection, as is well-known, consists of the 12 following attractive pictures, by the well-known artists mentioned:

"Dawn and Sunset"....H. P. Robinson
"Childhood"....H. McMichael
"As Age Steals On"....J. F. Ryder
"A Portrait Study"....B. J. Falk
"Solid Comfort"....John E. Dumont
"Ophelia"....H. P. Robinson
"No Barrier"....F. A. Jackson
"El Capitan"....W. H. Jackson
"Still Waters"....J. J. Montgomery
"Surf"....James F. Cowee
"A Horse Race"....George Barker
"Hi, Mister, may we have some Apples?"....Geo. B. Wood

The photogravures are printed on Japanese paper, mounted on 11 x 14 heavy plate paper, and are put up in an ornamental portfolio. The collection is sent postpaid on receipt of price, by the publishers, Scovill, Adams & Co.

Stein & Rosch, artistic photographers of Chicago, have sent us a number of most attractive "child" pictures, made in a manner to justify the numerous medals which have been awarded these artists.

We have received from Strauss, photographer, of St. Louis, Mo., a collection of very beautiful cabinet photographs mainly of child subjects. Nothing could be better in their way than Mr. Strauss' pictures of children with their animal pets; one especially, a little girl standing before a trick dog (evidently her own), will probably find a place in the forthcoming "Annual of Photography and Photographic Times Almanac."

Dean's Stabat Mater Lectures.—A most interesting course of Lenten Lectures upon the "Stabat Mater" will be given by Mr. Frederic Dean, in Behr Bros.' Hall, 81 Fifth Avenue, on successive Thursday mornings, at 11 o'clock, during the first five weeks of Lent, March 3d, 10th, 17th, 24th, and 31st. The lectures will be illustrated with selections from the most famous musical settings of this ancient Latin hymn, rendered by eminent soloists with the accompaniment of full chorus and orchestra.

NOT HIS BOY.

[[Jim has returned home with a city-made photograph.]

"Say, Jim, my son, this hain't yore fortygraff?
It be? Git out—ye make the ole man laff.
That you? Why, Jim, my boy, ye ain't in that!
Fust place, I never seen ye 'thout yer hat;
I never seen ye with yer ha'r so slick—
Mos' ginerally mussed like an old hay-rick.

"They've libelled of ye, Jim, up thar in town.
Whar's yer ole clay pipe? Whar's yer dressin'-gown?
'N' see them lips, Jim, kinder pu'sed, severe!
Yer smile seems thutty mile or more from here;
Yer cheeks looks shaved—not a derned bit like you—
They're sorter pink inste'd o' ha'ry blue.

"I don't want that, so take the thing away;
It ain't the Jim I've knowed this many a day.
More like a city feller—kinder dude!
The blame thing really knocks me off my food.
Yer might be made to look so, but you see
I like ye better, Jim, jest as ye be.

"These folks can paint ther churches blue 'n' red,
'N' not a word by me 'll e'er be said;
Revise the good book even, I'll not kick,
Altho' the habit makes me mighty sick;
But as for fortygraffers, Heav'n help him
Which ever gits caught changin' my boy Jim!"

—*Harper's Magazine.*

Record of Photographic Patents.

470,012. Method of Producing Photo-Mechanical Printing Plates. Ludwig Shaefer, Heilbronn, Germany.

470,054. Photographic Roller-Holder. George Jones, Rochester, N. Y.



A GOOD WAY TO TAKE IT!

Queries and Answers.

223 C. C. O. asks a formula for toning green bromide paper prints.

223 *Answer.*—We know of no particular process. After toning red by uranium and washing, the print immersed into a solution of nitrate of cobalt will turn to a green.

224 I. R. S.—In the kallitype process are the prints made by sunlight and toned, or by artificial light and developed? If the latter, how are they kept flat in the tray?

224 *Answer.*—Kallitype prints, on account of the great sensitiveness of the paper, may be made in diffused daylight, in gas, petroleum, electric or any other artificial light, the time of exposure depending of course on the intensity of light as well as that of the negative. As a general thing kallitype prints are not toned, but merely developed, the tone of the print being modified by the developer to black, sepia or brown, but black prints may be toned to purple or reddish-purple by either acid or neutralized chloride of gold.

Our correspondent is seemingly but little acquainted with kallitype printing; we repeat therefore the outlines of the process. Originally paper was sensitized with ferric oxalate, and developed with a silver salt, an organic-alkaline salt like citrate of soda being present. Later on the paper was sensitized with sodium ferric oxalate and developed with nitrate of silver acidified with citric acid, in either no fixing but a mere washing being required. Now a silver salt, the argentic oxalate, combined with other substances, is used to sensitize the paper with, and developing and toning done with solutions of such substances as borax, Rochelle salt, etc.

We advise to read the daily literature of the subject. No one seems to have come as yet to a determination which of the many formulas afloat is the best.

225 T. H. O., Elizabeth, N. J., asks: (1) What is the equivalent focus of a 5 x 8 Morrison wide-angle lens? (2) And that of a 5 x 8 Optimus? (3) Do the foci of well-made lenses vary very much, and do they always cover the same size of plate?

225 *Answer.*—(1) 6 inches. (2) $8\frac{1}{4}$ inches. (3) They are generally alike, differences in the focal length are occasionally found in the Morrison W. A., but never exceed $\frac{3}{32}$ or $\frac{1}{16}$ of an inch.

THE PHOTOGRAPHIC TIMES.

AN ILLUSTRATED WEEKLY JOURNAL DEVOTED TO THE ART, SCIENCE AND ADVANCEMENT OF PHOTOGRAPHY.

Issued every Friday.

W. I. LINCOLN ADAMS, Editor.

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" " one month's trial 50

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THE PHOTOGRAPHIC TIMES PUBLISHING ASSOCIATION,
423 Broome Street, New York.

Commercial Intelligence.

AN INTERESTING LETTER.

LEGATION OF THE UNITED STATES,
CARACAS, February 17th, 1892.

Harvard Dry-Plate Co.,
Cambridge, Mass.

Gentlemen—It gives me great pleasure to recommend (unsolicited) the "Harvard Dry-Plate" for tropical use. It is the only plate I have yet found that does not strip and frill in warm latitudes. It is clean, clear, and rapid, and I most cheerfully recommend it to amateurs or others wfio are contemplating a voyage in the tropics.

It would be to your advantage to advertise in such papers as have a circulation in South America, as the trade will no doubt prove a large one.

I have the honor to be,

Your obedient servant,
(Signed) RICHARD M. BARTLEMAN,
Secretary of Legation of the United States.

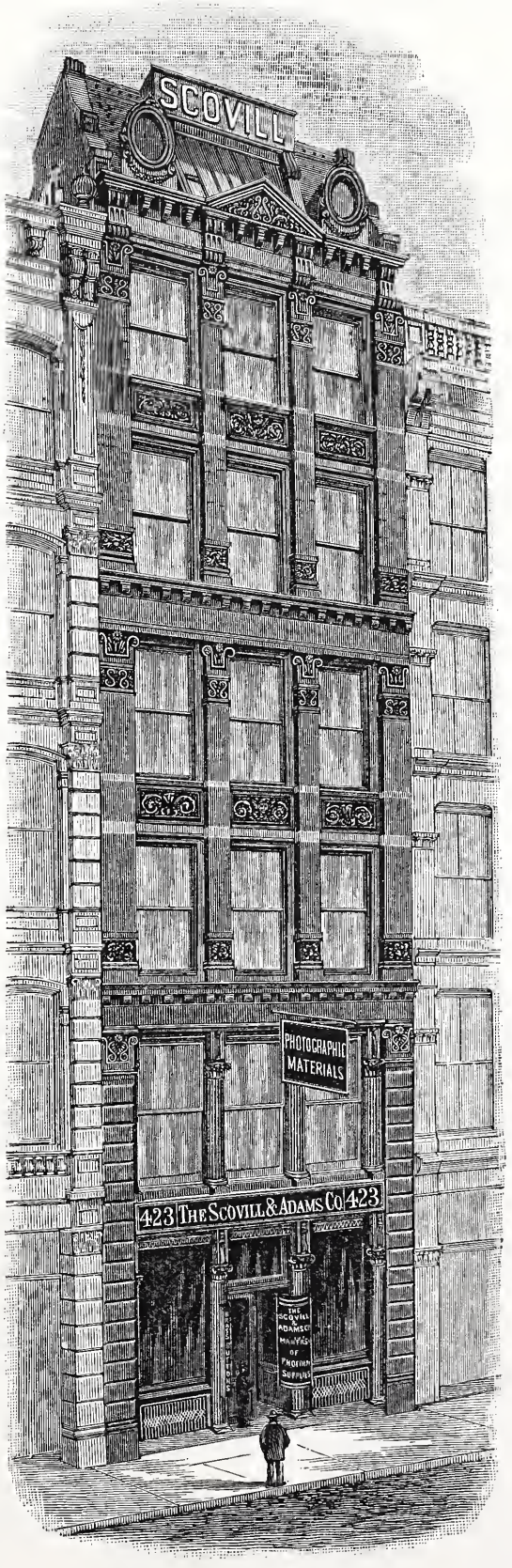
"The First Gun Fired."—The first article (unsolicited. for "The American Annual of Photography and Photographic Times Almanac" for 1893 has been received by the editors; and also an order for two pages of advertising in the same issue (also unsolicited). Both the contribution and the order for advertising came from abroad. Thus, scarcely before the last copy 1892 "Annual" is sold come the first article and the first advertisement for the 1893 issue.

J. H. Burkholder, of Tiffin, Ohio, who writes the article on "Duplicating Orders" in this issue of the magazine, has made arrangements with a rubber-stamp manufacturer, by which he is enabled to supply the rubber stamps described in his article, at $1 each.

Much Pleased.—"We are very much pleased with your valuable work."—R. J. REESE, Santa Cruz, Cal.

THE PHOTOGRAPHIC HEADQUARTERS.

As the reading on the sign in the accompanying illustration indicates, this picture represents



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C. M. BROCKWAY, 33 Worth St., New York.

FINE BARGAINS.—A 6½x8½ Compact View Camera Outfit, complete, with three fine imported lenses, all costing $200. Price, $125. Also a 4x5 folding Kokak; cost $50; price, $40. Address C. M. BROCKWAY,
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FOR SALE.—5x7 Henry Clay and 4x5 Waterbury Cameras. H. COUTANT, 15 Wall Street.

GALLERY FOR SALE in good location, well equipped for work up to 14x17 size, and nicely furnished. Price, $500 cash. Address N., Lock Box 573, Scranton, Pa.

FOR SALE.—A good gallery located in North St. Louis with the largest and finest operating room in the city; provided with instruments of all sizes and about 30,000 very valuable negatives; we offer this gallery at a bargain. Inquire at A. S. ALOE & CO.,
415 North Broadway, St. Louis, Mo.

A MATCHED PAIR OF ORIGINAL SINGLE Dallmeyer Lenses for stereoscopic work for sale at a bargain—$25 C.O.D; or remit the amount in check, money order or postal note. "MATCHED PAIR,"
Care of THE PHOTOGRAPHIC TIMES.

FLASH-LIGHTS AND HOW TO TAKE THEM! A complete treatise on Flash-Light work. Fully illustrated by Louis Clarence Bennett. Price, 50 cents. Order a copy now from THE SCOVILL & ADAMS CO.

LANTERN-SLIDES AND HOW TO MAKE THEM, by A. R. DRESSER.—A new book, very complete and thoroughly practical. Only 25 cents. Sent postpaid on receipt of price by THE SCOVILL & ADAMS CO.

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AT HALF PRICE.—I have an exceptionally fine 8x10 Rectiscope Rapid Rectilinear Lens costing $37.50, never used, which I will sell for $19.00.
W. A. ETTLIN,
5 Chatham Square, New York.

THE FINEST Platinotype Solar Enlargements and contact prints, in black and sepia, are made by
THE PLATINOTYPE CO.,
39 South 10th St., Philadelphia.
Send for price lists.

THE UNDERSIGNED has a few 6x5 Dallmeyer Rapid Rectilinear Lenses which he will sell for 20 per cent. from list prices. These lenses are a late importation and are all warranted. Address "TOURIST,"
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WANTED.—Choice stereoscopic negatives from all parts of the world. Address F. F. BRAILLARD, JR.,
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FOR SALE.—At specially low prices, a fine lot of Chance's Optical Glass, both Crown and Flint, which was imported for a manufacturer who has retired from business. For further particulars address
Messrs. CHARLES COOPER & CO.,
194 Worth St., New York City.

THE finest-fitted Dark-Rooms in the United States are open for the accommodation of Amateurs, at 122 W. 36th Street. DARLING, Photographer.

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FOR SALE CHEAP.—I will sell my Bridges' Photographic Flash Light Diffuser, which cost me $3.50, for $2.75, as I am going out of the business. The Diffuser has never been used. It is exactly as good as new. Address M., care THE PHOTOGRAPHIC TIMES.

WANTED.—Vols. 1, 4, 5, 7, 8, 10, 12, 18 and 19 of THE PHOTOGRAPHIC TIMES, bound or unbound. THE PHOTOGRAPHIC TIMES PUBLISHING ASSOCIATION.

A BARGAIN.—A No. 6 Gray's Periscope Lens in first-class condition. List price, $22.00. Will sell for $15.00. Spot cash. Address LENS BARGAIN, care THE PHOTOGRAPHIC TIMES.

NO FUMING, NO BLISTERS.—Experiment with all the "papers" advertised, and learn. But when you want to make choice, spotless prints use WISSAHICKON SENSITIZED ALBUMEN PAPER. Tone it in compound bath and squeegee on ferro plate, if you like. Send 2 cent stamp for 4x5 sample to JOHN HAWORTH,
641 Arch Street, Philadelphia.

LANGILL. 10 East 14th Street, makes all kinds of outdoor negatives. Portrait photographers will do well to consult him when such is required. First prize for Architectural photographs, P. A. of A.

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" 3, 11x14 for 8 x10 " 2 25

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Send 30 cents for a specimen print, portrait or landscape, on our new heavy India Tint Mounts.

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PARA-AMIDOPHENOL HYDROCHLORATE.
THE DEVELOPING AGENT OF THE FUTURE.

With para-amidophenol there is no staining of the film, as with eikonogen and hydrochinon when development is prolonged, absolute transparency and opacity is secured, and the time of exposure is reduced about 30 per cent. without injury to half-tones and middle-tints.

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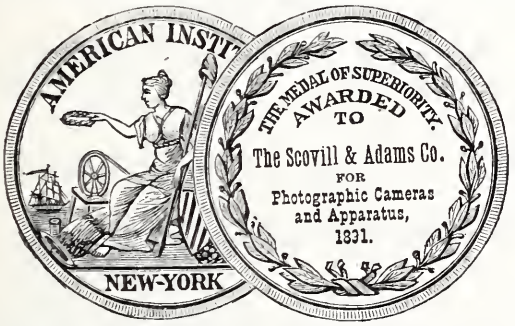
Para-amidophenol (pure)	100 grains
Sodium sulphite (crystals)	3 ounces
Potassium carbonate	1½ ounces
Water	32 ounces

FOR USE.—Take 1 ounce of the above solution and from 2 to 4 ounces of water, according to the length of exposure.

The stronger the solution the greater the intensity of the resulting negative; the more diluted the solution the greater softness and more detail.

PURE PARA-AMIDOPHENOL HYDROCHLORATE,
IN ONE-HALF OUNCE BOTTLES,
$1 per bottle
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for photographic cameras and apparatus, 1891.

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(These advertisements are inserted free of cost to photographers out of employment, in order to help them find situations.)

SITUATIONS WANTED.

An operator of extensive experience in studio and field would be pleased to hear of an engagement; three years in West London studio, and three seasons traveling, taking landscapes and cathedral architecture (developed own plates) and obtained highest possible reference for same; still engaged, but desirous of making a change. Address Rupert Stearn, 72 Bridge Street, Cambridge, England.

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NEAR TWENTY-THIRD STREET,

Occupied for more than twenty-seven years by FREDRICKS & O'NEIL, and now occupied by FALK.

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School of Photography.

The local class of 1891-'92 opened Monday, October 5th. Term closes the second week of May, 1892.

Class hours from 9 to 12 every Monday and Saturday.

The skylight room and laboratory used by these classes are on the seventh floor of No. 423 Broome Street, New York. (Take elevator.)

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Special Single Lessons, per hour, each, $1.

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After completing the regular course, students are admitted to examination, and if passed, are awarded a Chautauqua diploma.

Students are admitted to the corresponding class at any time. Tuition fee, including printed lessons, subscription to the official organ of the School, and text book, $7.

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PROF. CHARLES EHRMANN,
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Shown in Photographs with Subjects, in our new Sample Book.

Also the best and most complete line of accessories made.

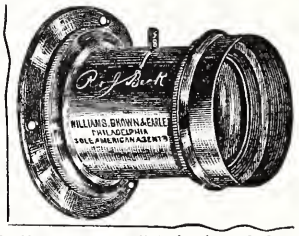
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A *good* article in this line is always hard to find. The *package* paper is variable and not to be relied upon. The motive of this little "Ad." is to tell you of our *special* Blue Paper. It is made fresh every day, on imported paper; is 50 per cent. cheaper than other papers, and withal is the best. Per yard (27 inches wide), cut to any size, 25c. Send 5c. for sample. THE OBRIG CAMERA CO.,
163 Broadway, New York.

If you are thinking of Purchasing a PHOTOGRAPHIC CAMERA do not fail to write us for prices. If you wish to get SUPERB RESULTS get a

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Sole American Agents for the Beck Lens.

Correspondence Solicited.

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They can be loaded in the *daylight*, and we give full and careful personal instructions gratis. We develop, print and mount in albums at Eastman's prices. Only *first-class* work turned out. THE OBRIG CAMERA CO.
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S. P. C. EIKOQUINOL DEVELOPER.—This "ne plus ultra" developer for timed and instantaneous exposures, lantern slides and all other kinds of transparencies, photo-mechanical work and bromide paper prints is now in stock and for sale at 35 cents per bottle of 8 ounces. No other developer is now used by the members of Chautauqua School of Photography; no other has attained to equally fine results.

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8 feet high at $1.00 per running foot.

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Printed on extra heavy plate paper, 11x14 *inches in size.*

SUITABLE FOR FRAMING.

What Mr. George Inness, America's greatest landscape painter, says of these Photogravures:—"*They are very charming, and should prove extremely useful in the development of the landscape art of our country.*"

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THE COLLECTION INCLUDES:

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THE PHOTO TIMES and PHOTO AMERICAN together for $5 per year.

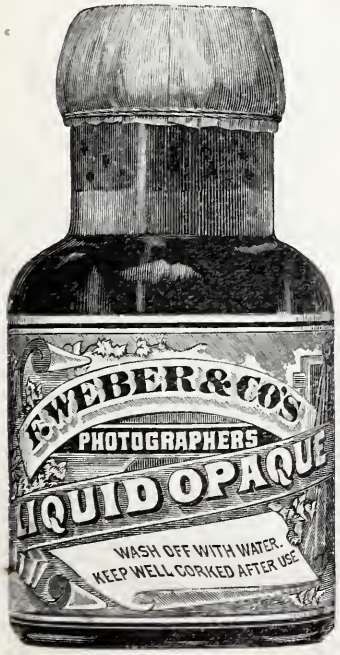
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PHOTOGRAPHERS' LIQUID OPAQUE,

50 Cents per Bottle,



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For marking or numbering negatives, for drawing on matt surface print, and for all purposes where India ink is used.

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RAPID UNIVERSAL LENSES,

for Group work in Studios and all outdoor work, and

ALVAN G. CLARK LENSES,

on both of which there has been a decided reduction in prices.

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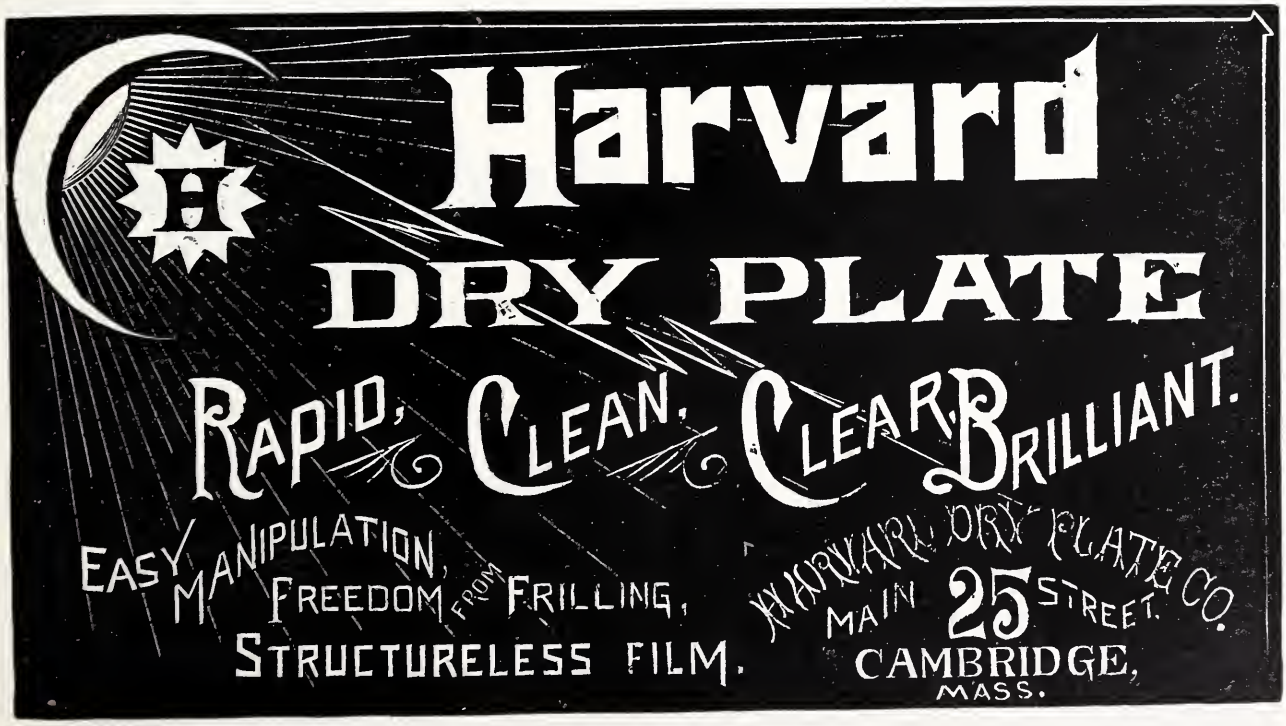
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These sizes may be sent by mail on receipt of 35c. extra.

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NOT THE CAMERA,

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Written expressly to help the beginner in perplexity.

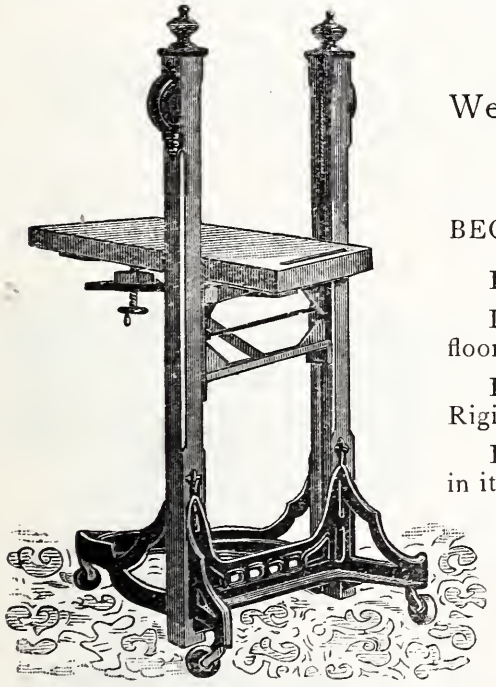
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It is simple in construction and will not get out of order.

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It is fitted with turning casters, with rubber wheels. Strong, Rigid, Easy in Operation, and Ornamental in Appearance.

It is the invention of a practical photographer and is perfected in its details. WARRANTED PERFECT.

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These lenses are absolutely rectilinear; they embrace an angle of 100 degrees, and are the most rapid *wide-angle* lenses made.

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3..1	"	...4¼x 6½ "	... 4½ " ... "	25.00	These 5 sizes will
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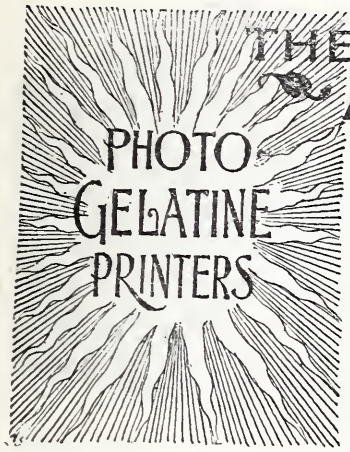
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imitations
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WATERBURY
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Look out
for the
genuine, too,
and see
that you
get it.

It is
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and Cheapest.



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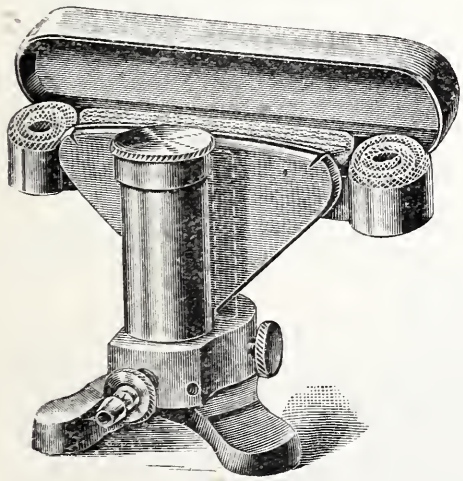
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Has so much greater capacity—**especially for large work**; and is generally so much more serviceable than any other, and is beyond question the most economical in consumption of powder, that when once tried in competition with any other lamp, it is sure to supersede it.



Dimensions, 4½x3x2½ inches.

A **PROSCH STORAGE FLASH LAMP, costing $5.00,** is much cheaper than any other lamp obtainable; **because** one PROSCH LAMP will give more EFFECTIVE light than any two $2.50, or even $3.50, lamps to be had; and it will, in saving of powder, earn its cost in a short time.

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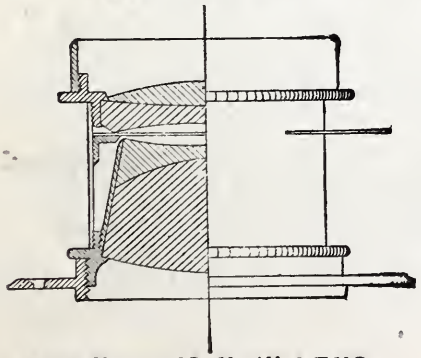
HAVE AN ESTABLISHED REPUTATION FOR SUPERIORITY.

Send for Circulars and Desired Information.

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These Lenses not only maintain their old-established reputation, but continue to lead in the field of progress. Made in six different series for every description of work. Special attention is called to

Series No. II, Patent Antiplanatic, the newest conception in rapid lenses. For Instantaneous Portraits, Large Heads, Full Figure Groups, Architecture, and Landscape. A marvel of illumination, depth and rapidity. No Photographer or Amateur should purchase a lens before testing a Steinheil, Series No. II. See accompanying cut.

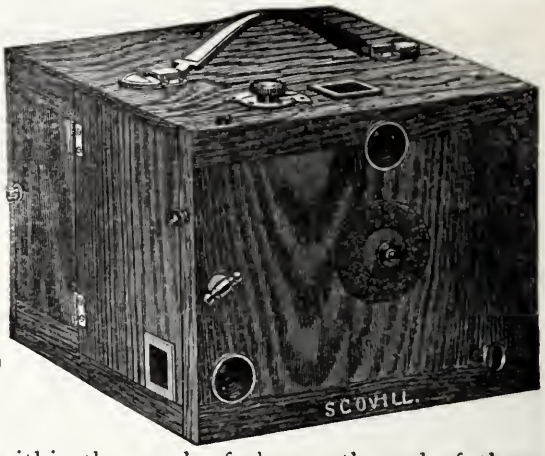
Series No. III, the famous Aplanatic tube, the illumination of which has been increased, and which is recommended for large Portraits, full-size Figures, Groups, Architecture, and Landseape.

Series No. VI, Wide Angle Aplanat, which has no rival for copying Maps, Charts, Paintings and Engravings. It is the Photo-lithographer's favorite.

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To MEET the demand for a cheap Detective Camera within the reach of the youth, and of those who want to make but a moderate investment in photographic appliances, we have introduced the KNACK CAMERA, which is certainly lighter and more compact than any other cheap detective camera in the market, and what is still more important, has a much more expensive and more perfect lens.

This Double Combination Instantaneous Lens, with Interchangeable Stops, when bought separately costs as much as the whole camera.

The whole front of this camera is hinged, which is a great convenience. The camera has a Recessed Finder, an Instantaneous and Time Shutter with Speed Regulator, Cap for timed exposures, and one Double Dry Plate Holder.

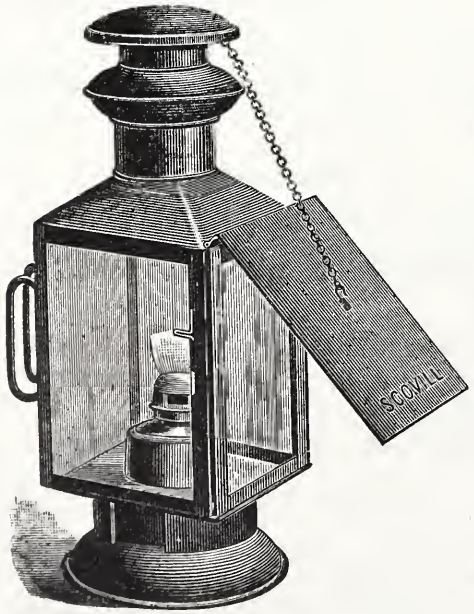
	PRICE.
No. 1 4x5 Antique Oak, Knack Camera, -	**$15.00**
No. 2, " Leather Covered, " "	**17.50**

MANUFACTURED BY THE SCOVILL & ADAMS CO.

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THE SCOVILL PEERLESS DARK-ROOM LANTERN.

(IMPROVED.)



"This is without question the best Lantern for the Photographer's use yet introduced."

Such is the reports of experts who have had them in use for months.

Why they were agreed in their conclusions:

BECAUSE the ventilation is perfect, and dangerofoverheating overcome.

BECAUSE it is constructed so that white light does not escape.

BECAUSE it gives ample light for the dark-room.

BECAUSE the abundant light does not fog, but does show any spot or blemish in the plate.

BECAUSE so much of the light may be thrown into the developing dish and be shaded from the eyes.

BECAUSE it may be used either with coal oil or candle.

BECAUSE the flame may be so quickly controlled by unlatching the door or uncatching the bottom of the Lantern.

PRICE, $2.50.

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Has been designed for the purpose of simplifying the task of mounting slides so that when done they shall be WELL done; and to help the Lantern Operator to project them to the very best advantage.

There are several points pretty generally conceded, viz.:

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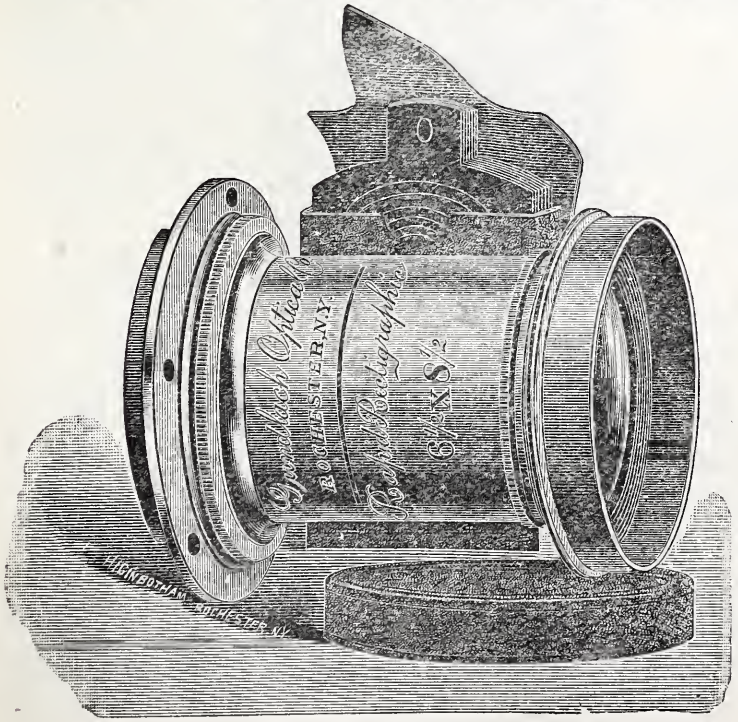
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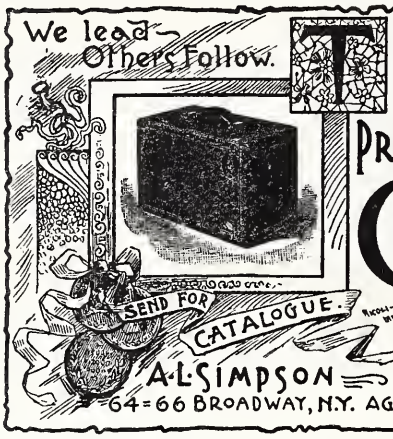
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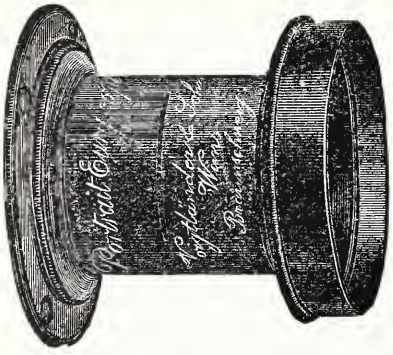
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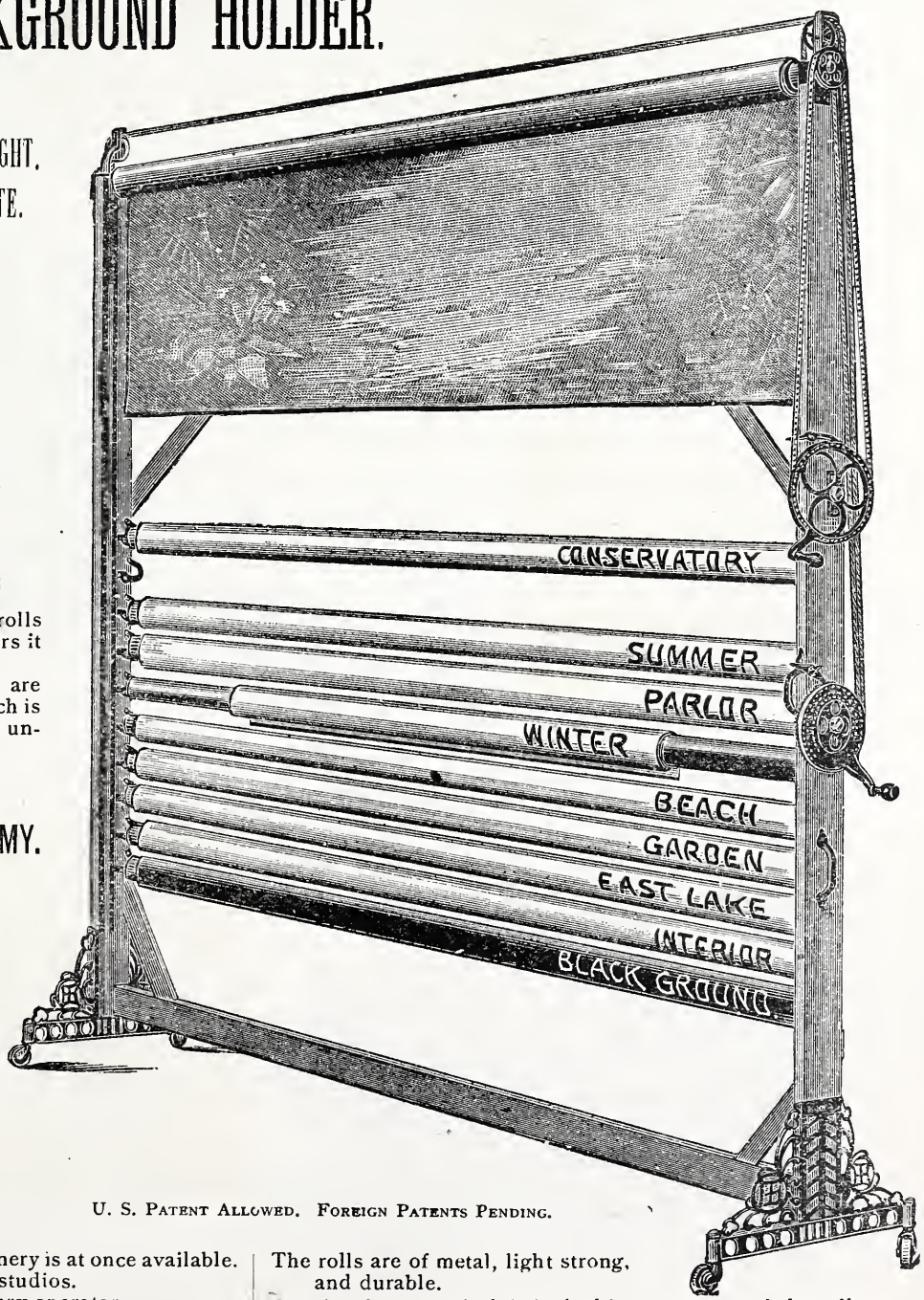
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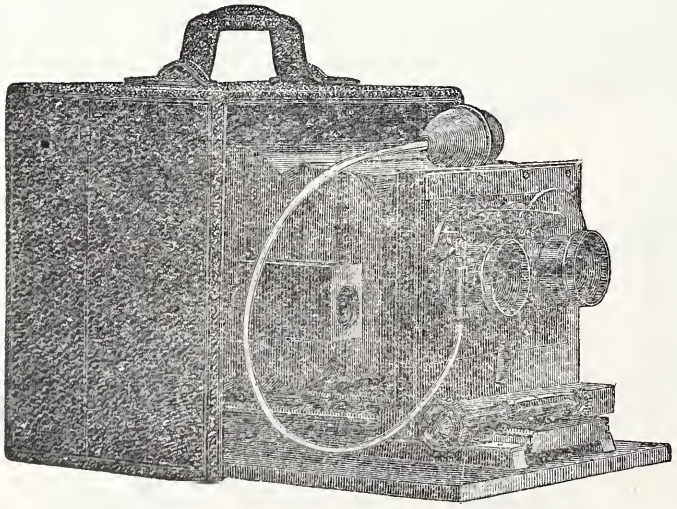
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The second illustration shows the appearance of the camera when open. The pair of Optimus Lenses is fitted with a triplex stereoscopic shutter with pneumatic release, made by the Prosch Manufacturing Company.



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THE
PHOTOGRAPHIC TIMES.

VOL. XXII. MARCH 25, 1892. No. 549.

OUR PORTRAIT.

WE present our readers this week with an excellent portrait of Bishop John H. Vincent, Chancellor of the Chautauqua University, and the illustrious patron of its School of Photograpy. The article which follows tells us something of the man, the university and the school. The portrait negative is by McMichael, of Buffalo, and is an excellent example of his superior portrait work.

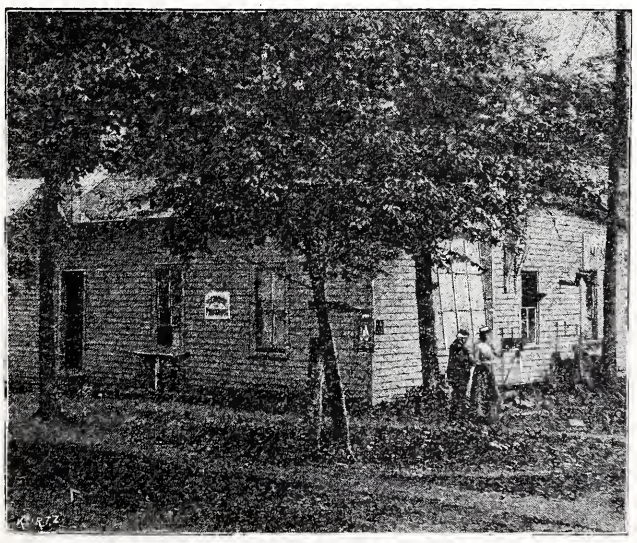
THE RIGHT REV. JOHN H. VINCENT, D.D.

To educate liberally upon Christian lines those who have not nor can have college opportunities, is the commendable mission of the Chautauqua University. This object has been pursued with the greatest success for nearly nineteen years, and thousands of people from all strata of society and of every age have flocked every summer since the movement was started, in ever-increasing numbers, to this modern Mecca on the shores of Lake Chautauqua, New York. The Chautauqua Literary and Scientific Circles have an average membership ranging from 30,000 to 40,000 pupils, numbering in its classes representatives from the remotest corners of the globe. Various schools in addition to these circles have been conducted under Chautauquan authority to a great extent by correspondence, increasing the number of Chautauquans many fold.

This gigantic system of education owes its existence mainly to two men, one of whom is its chancellor, the Right Rev. John H. Vincent, D.D.; the other is the Hon. Lewis Miller, of Akron, Ohio, president of the Chautauqua Association.

Bishop Vincent is a descendant of a Huguenot family, and was born in Tuscaloosa, Ala., February 23d, 1832. In his early youth he taught school, and after completing his education for the Methodist ministry at Alleghany College, Meadville, Pa., he served as pastor in several communities of New Jersey and Illinois. The absorbing problem with him even at this time was "How can the great world catch the college outlook?" and it was to solve this problem that he established the Chautauqua University, becoming its chancellor and the president of the C. L. S. C.

In a certain sense of the word, scarcely any educational institution in the world deserves its title of university so well as does the Chautauqua institution. Under this organization the student may actually devote himself to the acquiring of universal knowledge. All the languages are taught, from Sanskrit to Volapuk. There are classes in abstract sciences, mathematics, chemistry, and physics, history, political economy, music, the fine arts, and even photography.



The latter school was established through the influence of Bishop Vincent, and to the present day, numbering as it does about 700 pupils, it owes its success largely to him. A photographic schoolhouse has recently been erected with all the conveniences of studio and photographic library for the use of this school during the summer months,

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at Lake Chautauqua, and every facility has been extended to Professor Ehrmann, instructor of the school, through the interest in it of the learned and genial Chancellor of the University.

Dr. Vincent's health of late has shown signs of failing, as the result of his great mental exertions during a score of years. He is, therefore, at present traveling in Europe, where it is reported he is rapidly recovering his wonted health and strength. That he may live long to guide the great university which he was to so great an extent instrumental in founding, is the wish of thousands of his admirers.

PHOTOGRAPHY IN NATURAL COLORS.

DOCTEUR RAPHAEL KOPP, of Lucerne, Switzerland, has lately discovered a heliographic process for which a patent has been taken.

It is as follows:

A sheet of plain Rives paper is prepared by floating on a solution of pure sodium chloride at 10 per cent. of distilled water during two minutes and, when dry, sensitizing on an 8 per cent. silver nitrate bath for the same period, when it is placed again in the chloride solution for a few moments, and finally immersed in

Zinc chloride, pure....	0.15 gram
Sulphuric acid, pure..... .	2 drops
Water, distilled.....	150 c.cm.

The paper is now exposed to diffused day-light while in this solution until the prepared side—silver chloride—assumes a greenish blue color, and no longer. This done the paper is carefully washed, and dried between sheets of blotting paper. It will keep for a long time.

Now, to render the preparation suitable for reproducing the colors, Mr. Kopp proceeds in the following manner:

He first prepares a solution of

Potassium bichromate, pure.....	15 grams
Cupric sulphate, pure	15 grams
Distilled water.....	100 grams

and when heated to boiling he adds to this, while stirring, 15 grams of pure mercuric chloride dissolved in the smallest possible quantity of water, and slightly acidified by nitric acid. The solution is then allowed to cool very gradually, filtered and kept for use. It must form a volume of one hundred cubic centimeters, which generally requires the addition of water or its evaporation.

In this bath the prepared paper is immersed for half a minute, then drained, then immersed in a zinc chloride solution at 3 per cent. until it again becomes blue, then washed, sponged between blotting papers, and once more placed in the mercuric bath for a period of eight minutes, when after sponging as said above, it can be exposed to the action of light.

It is important not to let the paper dry. It should be exposed while damp.

After exposure the yellow and green are well impressed, but the other colors, the whites included, are impaired by a yellowish veil, which is not, however, permanent, and disappears in the developing bath, whose action the yellow and green colors of the picture cannot evidently withstand. Hence the necessity of protecting these colorations by an alcoholic varnish.

The developing bath is simply a solution of pure sulphuric acid at two per cent. of distilled water. In it the proof should remain immersed until the yellowish veils entirely disappear and the colors stand out with all their brightness.

The proof is then rapidly washed in running water, sponged and, to be fixed, placed for five minutes in the mercuric bath whose mode of preparation is above given, after which it is again immersed in the developing bath until the colors are revived. No washing is now necessary, it suffices to press the proof surface dry between blotting paper.

Lastly, the heliograph is coated with a solution, prepared beforehand and filtered for use, of gum arabic strongly acidified with sulphuric acid, then dried by heat and varnished.

This process has a great similarity with that of Poitevin and of De St. Florent.

See *Comptes Rendus*, vol. lxi.; the *Bulletin* of the Société Française de Photographie, vols. xiv., xix., xx.; and the *British Journal of Photography* for 1865 and 1874.

Referring to the above article, Mr. Frederick E. Ives writes "that the process of Dr. Kopp is another modification of the old silver chloride process, which has been announced as a solution of the problem of photography in natural colors every few years since the discovery of the daguerreotype process. The only results I have seen by such a process were those of Veress, which were not really good; or even 'promising,' although they created a great sensation, and were talked about all over the world. Dr. Kopp's results are probably better, but even if they were what might fairly be called 'good,' the admission that it is necessary to cover some colors with a waterproof varnish in order to develop others and clear the whites, is sufficient to prove that accuracy is absolutely impossible with such a process when dealing with delicate shades of color and color blendings."

TO COPY OBJECTS WITHOUT THEIR SHADOWS.

It is sometimes exceedingly useful to photograph certain objects without their shadows: anatomical pieces, geological specimens, the arms and domestic instruments of our forefathers of the palæolitic, neolitic and other periods—in a word, any object of which it is important to see the contour well delineated.

For that purpose one should procure a tripod with a plate-form perforated in the center with a hole large enough to insert the lens. The camera is therefore directed downwards. On each leg of this trrpod is adapted a small brass support which can be moved up or down and made fast by a screw. Between the legs is placed a thick glass plate held by the three supports, and it is upon it that the object to be photographed is placed, a white or tinted cardboard laid on the floor serving as a back ground.

It is obvious that in this manner can be photographed translucent objects by an arrangement, which suggests itself, permitting to light them from under.

FADING OF GELATINE PRINTS.

Fading of gelatine prints (aristotypes) is now at the order of the day in photographic societies. No wonder! Silver prints made with all the possible care to tone by the substitution of the metals of the gold class only, that is, by avoiding sulphuration, and to eliminate by chemical actions every trace of the silver and sodium thiosulphate from the paper, are already of incertain permanency, so much the more incertain as the photo-film was prepared with organo-silver compounds so difficultly removed, if ever entirely by the ordinary method of fixing. And, however, the amateurs and the professionals working the gelatino or collodion aristotype paper tone and fix in one operation, that is, employ a process which years ago was condemned as surely causing a rapid fading of every positive photograph—oh, Dr. Liesegang!

ON THE CARE TO BE TAKEN IN WORKING THE CARBON PROCESS.

How to avoid the poisonous action on the skin resulting from the absorption of potassium bichromate—action which manifests itself by a great irritation and itching, and finally produces an eczema—is a question which quite interests those of our readers who work the carbon process, either to make diapositives or transfers for relief or intaglio photo-engravings.

In answer to queries which country photographers have made to the writer we will say:

India-rubber gloves are no doubt an excellent protection, but they are not very handy to work with, and we think they can be dispensed with.

To sensitize it will suffice to rub the hand with a pomatum made of paraffine, which, by closing the pores of the skin and repelling liquids, will prevent absorption. As the tissue curls in the bichromate solution, it should be held by strips of glass plate until flattened, in order not to bathe the fingers unnecessarily.

For developing—and it is the most dangerous operation on account of the warm water used, which renders the skin more absorbent—instead of dashing the water with the hand, as taught by Lambert when he came to this country to sell the carbon patent, now void, one should throw it with a wooden spoon.

After the work, and even from time to time when there are on the skin any yellow stains from the bichromate, it is well to touch them with a diluted solution of ammonia and to rinse the hand under the tap.

In taking these simple precautions, the carbon process and every other one in which a bichromate is employed can be worked in perfect safety.

PHOTOGRAPHY ABROAD.

Gelatino-bromide Emulsion.

In a lecture made before the Brussels Section of the "Association Belge de Photographie," Mr. Geruzet gives a process for preparing a gelatino-silver bromide emulsion which he has employed during several years with good success. A solution of

Gelatine	20 grams
Potassium bromide	40 grams
Water	200 c.c.

is dissolved in a water bath, and, on the other hand, is prepared a solution of

Silver nitrate	50 grams
Water	200 c.c.

to which drop by drop is added concentrated aqueous ammonia until the oxide precipitated is dissolved, care being taken not to add an excess of ammonia.

This ammonio-silver nitrate compound one adds by small quantities, in agitating the vial, to the bromized gelatine solution kept over the water bath heated to 30 degrees Celsius.

Now the changes which occur in the state of the silver bromide should be ascertained by examining the color of a thin layer of the emulsion seen by transparency at the light of a candle.

When newly formed emulsion is orange, then by the action of heat it becomes blue, then green; the latter color indicating the stage of greatest sensitiveness to the luminous action. Hence the emulsion is removed from the water bath when the greenish color appears, 60 grams of gelatine are added, and when this is dissolved tepid water is added to make up a volume of 1 litre, and after mixed, the emulsion is poured in a flat dish, allowed to become a gelatinous mass and washed in the ordinary manner.

Development of Diapositives by Pyro-Catechin.

To obtain brown tones with the ordinary gelatino-bromide plates of commerce, pyrocatechin should be employed.

Prepare the two following stock solutions:

A.

Potassium carbonate	1
Water	10

B.

Pyrocatechin	1
Water	50

The plate impressed by contact or by means of the camera obscura is developed by

Solution A	20
Solution B	3
Water	60

The development proceeds more slowly than with pyrogallol. Consequently it is well to expose for a somewhat longer period than it is necessary with this reagent.

After developing, which requires from five to ten minutes, one washes the proof in water and fixes in the ordinary sodium thiosulphate solution *without sulphite.*

More vigor and density are obtained by exposing about half less, and developing with a solution of

Solution A	20
Solution B	10
Water	60

To restrain the development, increasing the contrasts, etc., a few drops, 4 or 5, of a 10 per 100 potassium bromide solution are added when the image is faintly visible in the details.

If to the fixing solution a little sodium bisulphite be added the brown tone is not destroyed but transformed into a more dark brown or even black tint.

Pyrocatechin does not produce yellow fog.

This process is due to Dr. Eder.

Toning Without Gold.

Any one writing on photography, every one recommending new formulas should know the chemical actions to which the compounds they have devised give rise, in order not to lead one to mischief.

Advising formulas for toning and fixing positive prints—not previously washed—in one operation without gold, which on the whole would be useless in the compound recommended, and for it substituting lead, copper, and others of the low metals salts which have no action as toning agent proper, is a crime of lese-photography!

What is really incredible is that, in the year 1892, one can publish the following toning-fixing process, and seriously state that "he will guarantee the permanence of prints on *his* (the italics are ours) paper when toned strictly according to his formula, which is without gold" (!)

This formula reads thus:

Water	64 ounces
Hypo	16 ounces

Dissolve and add

Powdered alum	4 ounces
Nitrate of lead	120 grains

"Use fresh, if necessary, in which case filter through chamois or cotton," etc.

Use fresh—that is, fix in a bath emitting and holding an enormous quantity of sulphur dioxide (sulphurous acid), as shown by the following equation:

$$3Na_2S_2O_3 + Al_2(SO_4)_3 = 3Na_2SO_4 + Al_2O_3 + S_3 + 3SO_2{}^*$$

Sodium thiosulphate (hyposulphite) — Aluminium sulphate — Sodium sulphate — Alumina — Sulphur — Sulphur dioxide.

Hence, the toning process is one of sulphuration,† nitrate of lead forming a hyposulphite soluble in the sodium salt, which has n action whatever on silver, but which by being precipitated with the silver, both as sulphides when extracting the noble metal, greatly interferes in the obtaining of the latter in the pure state, the refiner having to resort to cupellation to get rid of the lead.

This and similar processes will surely be adopted by over-economical photographers, and "Cheap Jones" and *his* paper will sell well. Toning without gold, what a boon! Who cares whether the pictures fade or not in a certain period?

* This is the ultimate action. Thiosulphuric acid is first liberated and, as it forms, splits into S and SO^2.

† If the bath is used when prepared for a long time before use and when already in use the result is the same.

PHOTOGRAPHY FOR BEGINNERS.

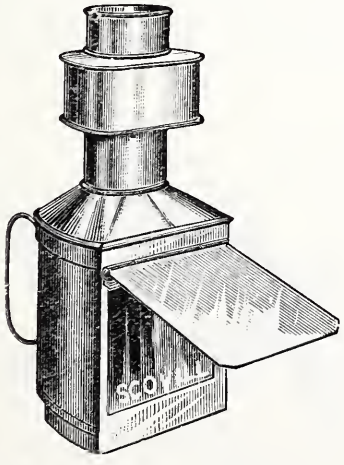
(*Continued from page* 132.)

In the Dark Room.

It now becomes our pleasant duty to "develop," as it is termed, in a dark-room, the sensitive plates which we "exposed" in our camera in the fields. But before doing so we must fit up a dark-room and prepare the solutions.

A dark-room may easily be improvised by the amateur. Any room from which all rays of sun or white light can be excluded will answer the purpose perfectly well. The bathroom or kitchen may be used in the evening, and are very convenient, too, for here we can use running water and have plenty of it. It is only necessary to light our ruby lantern (which came with the outfit), unpack our trays and wash them, and make our solutions according to the directions which are given.

Where running water cannot be had, as, for instance, in a dark-room fitted up in the cellar, garret, or barn, or when we are using a spare closet for a developing room, or even one's own bedroom, we must add to our outfit a large pail for holding fresh water, and another pail or slop jar for receiving the waste water and old solutions.



THE RUBY LANTERN.

Unless we have a dark-room which is perfectly light-tight, we can develop in it only after sundown, for if a single ray of white light reaches our sensitive plate it will be spoiled at once. Red light, however, does not affect the sensitive surface of photographic plates or paper, so we can develop by it with perfect safety. The photographer can make his own red lantern without much trouble and expense, but a very convenient little ruby lantern, giving a good light to work by, can be had for a dollar and a quarter, and even cheaper ones may be purchased for fifty cents.

When one is so fortunate as to have a specially made dark-room which is absolutely light-proof, one can develop in it by day as well as at evening, by simply covering one window, or a small portion of the window, with a sheet of ruby glass or paper. The white light which then passes through the window becomes red before it enters the dark-room, and so is perfectly harmless to all photographic operations. At night, of course, the lantern must be resorted to, the same as in the case of the other dark-rooms mentioned.

A complete developing outfit should contain, in addition to the ruby lantern which we have already spoken of, two trays of the proper size, a 4-ounce glass graduate and a minim graduate for measuring our solutions, and a small pair of scales. The chemicals required are: a package of dry plates (which, of course, were purchased with the camera), a pound of hyposulphite of soda, a pound of alum, an ounce of bromide of ammonium, and a package of developer containing two solutions. A bottle of negative varnish is sometimes included, though for most amateurs' purpose it is not necessary to varnish a negative.

Having found and fitted up the dark-room with the utensils and chemicals enumerated, we are ready to develop our first plate.

There are many developers in the market already prepared for the amateur's use, and it is fully as well, at least in the beginning and more economical, to use one of these ready-prepared developers instead of making your own. First, at least, learn the use of the reliable one, consisting of pyrogallol, carbonate of potash, sulphite of soda, and other substances. In case any one should want to make it for himself, I will give the exact formula. It is composed as follows:

A.

Pyrogallol	1 ounce
Sulphite of soda (crystals)	4 ounces
Sulphurous acid	4 ounces
Water	10 ounces

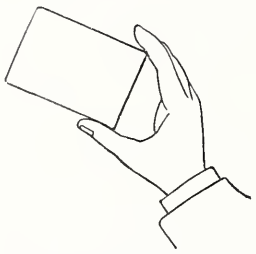
B.

Carbonate of potash	3 ounces
Carbonate of soda (granulated)	1 drachm
Water	10 ounces

The developing solution is formed by taking 1 dram each of the above solutions, A and B, to 1 ounce of water. It will be found more convenient and more economical to buy the developer already prepared, as has been said. It comes in two solutions, and the developing bath itself is composed as was just stated. Let us proceed to try it on the first plate which we exposed.

We take up one holder containing the two plates, and, observing which side contained the first exposure by the notes on the silicate slide, we care-

fully remove it from the holder, and place it in a tray filled with pure water. Here we allow it to soak for a few moments, and then immerse it in the developing solution which we have just made, and which is contained in the other tray. In handling the plate, be careful not to touch the sensitive side, which can easily be determined by its appearance, even in the dim ruby light, for the back of the plate is plain glass and glistens, while the sensitive side has a dull appearance. It should be held by its edges, as shown in the accompanying sketch.



HOLDING THE PLATE.

The image should not be long in making its appearance. At first a dark streak will be observed in about the middle of the plate, and soon all the upper (or lower) half of the negative will gradually darken. This is the sky, which, being most bright in nature, affected most strongly the sensitive plate, and is therefore first to make its appearance. Soon, however, the details of our picture, even in the shadows, will begin to appear, and we observe with breathless interest the beautiful landscape grow into being as we observed it first upon the ground glass of our camera. We must wait patiently, however, until the image is fully out, and the milky-white appearance of the plate is changed to a dark gray color, gently rocking the tray which contains the developer all the time. When the plate is fully developed we must remove it from the developing solution and wash it in two or three changes of water. It is now ready for the "fixing" bath. But before describing that process, it may be well to consider for a moment how we should have acted n case our plate had not been correctly "timed" in the exposure.

If the exposure had been too long, the image would have flashed up suddenly as soon as the plate touched the developing solution, and we could not have saved it from being a weak, "flat" negative, as it is termed, unless we were ready with our bromide of ammonium solution to add several drops to the developer, and some more of the "A" solution. The bromide of ammonium is composed by dissolving the contents of the ounce bottle in ten ounces of water.

If, on the other hand, our plate had not been exposed long enough in the camera, the picture would have been very slow in making its appearance, and the finer details, especially in the shadows and dark portions, would have failed to come forth. It would then have been necessary to add half a drachm or more of the "B" solution to the developing bath. It must be understood that the "B" solution accelerates development, while the "A" solution retards it. When the developed negative has been rinsed off in clear water, we place it in the hyposulphite of soda solution, where it is "fixed."

The "fixing" bath is composed by simply dissolving four ounces of the hyposulphite of soda in twenty ounces of water. Place the developed negative in this solution and allow it to remain there until the opaque yellowness has entirely disappeared from the back of the plate. It will require from five to fifteen minutes to accomplish this, and it is well to leave the plate a little while after it becomes perfectly clear rather than remove it too soon, for if the negative is not perfectly "fixed" it will afterward gradually turn yellow. I must here caution the amateur never to use the tray which contains the fixing solution for any other purpose. You cannot wash it so clean but that a slight trace of the "hypo," as it is called, will remain, and if that comes into contact with the plate during any previous process it will surely spoil it.

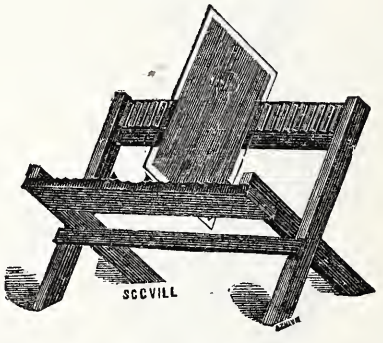


PLATE-RACK.

After the negative has been thoroughly "fixed," it only remains to wash it very carefully in several changes of water, when it is ready for drying, and, later, for printing. In the summer time it is often well to soak the negative, at this point, for a few minutes, in a solution composed of alum and water. This hardens the film and prevents it from "frilling" about the edges of the plate. The alum or hardening bath is composed by dissolving two or three ounces (the exact amount is not material) in several ounces of water.

When the plate has been thoroughly washed in three or four changes of water, or, better still, in a continuous gentle stream of running water, for, say, fifteen minutes or so, it should be set up to dry in

a secure place. While it is drying, we will take up our second plate and proceed in the development of it as in the first case, and so on until all the plates which we exposed have been developed, fixed, hardened, and washed.

(*To be continued.*)

THE CHEMISTRY OF PHOTOGRAPHY.

(*Continued from page* 148.)

CHAPTER VI.

Chemistry of Developing Processes (II). Calotype and Wet Collodion.

Chemistry of Calotype Development.—It must, we think, be granted, that if the *original* processes for photography published (1) by Daguerre, and (2) by Fox-Talbot in the year 1829 be compared, the advantage lies on the side of the Frenchman ; and this because he had discovered a process of *development*, while Talbot's "photogenic drawings" were necessarily *printed out* in the camera.

But in September, 1840, Talbot discovered a method of development which placed his process practically on a level with that of his foreign rival. The same process of development was discovered, independently, in the same year by an English clergyman, the Rev. J. B. Reade.

Talbot named his new method the *Calotype*, and he patented it early in 1841.* His sensitive surface consisted of sheets of paper coated with silver iodide which, when it was desired to prepare them for use, were brushed over with a mixture of silver nitrate, gallic acid, and acetic acid. To this mixture the name of "gallo-nitrate of silver" was applied. After exposure in the camera, the image was either invisible or very faint ; it was then brought out, strengthened, or "developed" by pouring over it more of the "gallo-nitrate of silver" solution, to which some alcohol was usually added in order to cause it to flow freely over the plate.

Here we have a developer containing three ingredients. Let us consider its chemical action, and the use of each ingredient.

Pure gallic acid was first obtained by Scheele in 1786. Its molecule contains eighteen atoms, $C_7H_6O_5$. It eagerly combines with oxygen, and with the halogen ; and is therefore styled a "powerful reducing agent."

The silver nitrate, to begin with, acts as a sensitizer, combining with the iodine which is given off under the agency of light. Let us first represent the decomposition of the iodide of silver when light acts upon the sensitive plate :

$$\underset{\text{Silver Iodide}}{AgI} \quad = \quad \textit{produces} \quad \underset{\text{Silver Sub-iodide}}{Ag_2I} \quad + \quad \textit{and} \quad \underset{\text{Iodine.}}{I}$$

The silver nitrate then attracts and combines with the liberated iodine :

$$\underset{\text{Silver Nitrate}}{6AgNO_3} + \textit{and} \quad \underset{\text{Iodine}}{6I} + \textit{and} \quad \underset{\text{Water}}{3H_2O} = \textit{produce} \quad \underset{\text{Silver Iodide}}{5AgI} + \textit{and}$$

$$\underset{\text{Nitric Acid}}{6HNO_3} + \textit{and} \quad \underset{\text{Silver Iodate.}}{AgIO_3}$$

The latent image is thus formed of silver sub-iodide, Ag_2I. Now this silver sub-iodide has a greater attraction, or is better able to combine with, nascent or freshly liberated silver, than the silver iodide which constitutes the surface of the film where it has *not* been affected by light.

What has to be done then is to produce metallic silver upon the surface of the film. There must also be a layer of water upon the surface to hold the chemicals in solution, and to allow the attracted atoms of silver to move freely towards the attracting molecules of silver sub-iodide.

By applying to the surface of the film a mixture of silver nitrate and gallic acid only, we get a copious, indeed too copious, production of metallic silver. The result of this would be a deposit of silver *all over* the plate, by which it would be "fogged" and spoilt. Here comes in the use of the acetic acid. This substance acts as a *restrainer*, retarding the precipitation of the silver, and giving time for the sub-iodide to exercise its attractive influence, so allowing this subsalt to draw to itself all the silver atoms as rapidly as they are produced.

$$\underset{\text{Gallic Acid}}{C_6H_2(HO)_3.COOH} + \underset{\text{Silver Nitrate}}{2AgNO_3} + \textit{and} \quad \underset{\text{Water}}{H_2O} = \textit{produce}$$

$$\underset{\text{Silver}}{Ag_2} + \textit{and} \quad \underset{\text{Nitric Acid}}{2HNO_3} + \textit{and} \quad \underset{\text{Oxidized Gallic Acid.}}{[C_6H_2(HO)_3.COOH+O]}$$

Chemical Action of Development in the Wet Collodion Process.—In the wet collodion process, as published by F. S. Archer in 1851, the developer was composed of

Water	1 ounce
Acetic acid	1 drachm
Pyrogallic acid	3 grains

Archer claimed that "the great power of pyrogallic acid in bringing out the latent image was first made known by me in a short description in the May number of *The Chemist* for 1850." Pyrogallic acid was discovered by Braconnot in 1831 ; and Professor Meldola writes that "its use as a photographic developer was suggested in 1851, by Liebig and Regnault." He seems, therefore, to have overlooked the claims of Archer. It is ob-

* The exact date was February 8th, 1841. This was the third British patent taken out in connection with photography.

tained by strongly heating gallic acid, when carbonic acid is given off:

$$\underset{\text{Gallic Acid}}{C_6H_2(HO)_3CO_2H} = \underset{\text{Pyrogallic Acid}}{C_6H_3(HO)_3} + \underset{\text{Carbonic Acid Gas.}}{CO_2}$$

(*produces* and *and*)

Archer's developer, as given above, appears to contain only two ingredients, pyro and acetic acid, but a third and very necessary part consisted of the solution of nitrate of silver with which the surface of the wet collodion plate was covered, both during exposure and development, and which it derived from the bath of silver nitrate into which it was plunged just before exposure.

This silver nitrate was reduced by the pyrogallic acid, metallic silver being set free, which immediately attached itself to the sub-iodide of silver which constituted the latent image:

$$\underset{\text{Water}}{H_2O} + \underset{\text{Pyrogallic Acid}}{C_6H_3(HO)_3} + \underset{\text{Silver Nitrate}}{2AgNO_3} = \underset{\text{Silver}}{Ag_2} + \underset{\text{Nitric Acid}}{2HNO_3} + \underset{\text{Oxidized Pyro.}}{[C_6H_3(HO)_3+O]}$$

(*and* and *and*)

The precise chemical nature of the compound resulting from the oxidation of the pyrogallic acid is not certainly known. It is of a dark color, and is possibly allied to ulmic or humic acids.

W. Jerome Harrison.

(*To be continued.*)

STEREOSCOPIC VIEWS.

[Read before the Photographic Society of Kansas City.]

To illustrate this subject I took from my collection of several hundred such views, a handful at random, and picked out a few in which the distance between similar points in the middle distance of the picture was less than $2\frac{7}{8}$ inches, and a few others in which similar points were over 3 inches apart, marking on each this distance in pencil as a convenience in observation. As you see, these cards are gathered from a variety of sources, all the way from Paris to the Rocky Mountains, and are all from regular makers, no amateur work being considered in this, as I wish to show what I think is responsible for the decadence in this branch of photography.

You will notice that some of these cards are less than $2\frac{1}{2}$ inches between like visual points and some are over $3\frac{1}{4}$ inches between like points, and I claim that the decadence in this work, which has been considerably spoken of lately, but not explained, is directly the fault of the very persons whose business has been lost or injured by it. They have ignored one of the simplest and most absolute principles of optics.

The pupils of the human eye when looking at a distant object are generally about $2\frac{3}{8}$ inches apart. Nature provides for their approaching each other as for viewing near objects, naturally and unconsciously, but any divergence outside of parallelism is unnatural and painful, if not altogether impossible.

The photographer, aiming to give as large a picture as possible, has followed no fixed rule as to distance between similar points on his picture, as the picture shown illustrates, finding it impracticable to see such pictures with ordinary lenses; the optician has come to his aid with prismatic lenses, which certainly allow the eye to bring such pictures together, but whoever may explain it, or however it may be explained, the fact remains that to look at such pictures, that is, those which are too widely separate, soon tires the eyes, while with those which are $2\frac{3}{4}$ inches or less between like points the eye assimilates them easily and without fatigue. Look at the first series in which the pictures approximate this distance or less, and when you have looked them over, take up the next series in which this distance is greater, and I think you will find, at least some of you, that when you are done with them your eyes will have the same feeling as if you had been laboriously endeavoring to make out some far distant object.

It is not sufficient for the good of this class of work that some photographer shall make correct pictures and that some one optician shall make lenses fit to see them with; both pictures and lenses should be made to some well studied and agreed standard. My idea is that similar points in middle distances should never be more than $2\frac{3}{6}$ inches apart, and $2\frac{5}{8}$ inches would be a standard not to be departed from more than $\frac{1}{8}$ of an inch either way. I do not dispute the ability of opticians to make it possible much further apart, but I claim that for the million who want many millions of these pictures, a move in this direction by adopting a standard of this kind and living up to it would furnish the pictures they want, and the profession a new start in this line of work, to the advantage of maker and user alike.

G. W. Pearson.

PHOTOGRAPHY WITHOUT A LENS.

A CAMERA obscura and the lens seem to the amateur and professional photographers as being two instruments indispensable to obtaining a picture by the agency of light; it is from the perfection of the lens, and, of course, the ability of the operator, that depends the technic and artistic value of the photo copy. And, however, one or the other can be dispensed with. It is not our intention of now explaining how one could operate with a camera obscura—which would not give satisfac-

tory results—but to describe how one can replace the lens when, from any cause, it cannot be employed.

One knows that one of the utilities of the diaphragm is to increase the depth of the focus, that is, to form on the same screen a sharp image of the planes unequally distant from the lens, the depth increasing as the aperture diminishes. It consequently results from the diminution of the opening of the diaphragm that the very small surface of the lens which is utilized can be considered as being reduced to a plate with parallel faces. Hence such a plate not deviating the parallel rays can be suppressed, and we have then a camera obscura as devised by J. B. Porta. It is in the 17th chapter of his work, the "Magia Naturalis," that this celebrated physicist describes how without any other preparation than a camera obscura one sees on the inside plane, opposite the opening, the exterior objects with their natural colors.

The reversed image thus obtained increases in sharpness, but is so much the less illuminated, as the opening has a smaller diameter, and this because each luminous point on the screen is illuminated with a pencil of light of a small diameter, and because the smaller the images the sharper they are.

From this it results that with the old photo processes the little sensitiveness of the film did not permit one to use the primitive camera obscura without a lens.

The new preparations being exceedingly rapid one can replace the lens by a simple hole, as demonstrated by Méheux and Colson,* and this hole can be reduced to a very small aperture, $\frac{3}{10}$ of a millimeter, for example, without too much exaggerating the exposure time, which does not exceed two minutes.† The images thus produced possess the following advantages:

1. They are geometrically similar to the objects they represent.

2. They are free from deformations, such as those from the aberration of refrangibility, astigmatism, etc., from the photographic lens.

3. The angle embraced may be considerable and extend to hundred degrees.

All the planes have the same sharpness, and one can enlarge or diminish the size of the image without displacing the apparatus, by simply varying the distance which separates the hole from the sensitive photo-film. However, according to M. Colson, there would be for a given diameter a focal distance giving the maximum of sharpness. This is not the opinion of M. V. Basilewski, according to which the sharpness depends only on the lighting. Sharp when the atmosphere is pure and the light intense, the images are wanting in sharpness by misty, foggy weather without sunshine. We will state, without intending to decide the question, that we never have obtained very good results except when no clouds obscured the sky, and then the photograph we obtained could pass as having been made with a lens.

The sort of sharpness given by the *stenope* (it is thus that MM. Dehors and Deslandres call the conic hole used to photograph without a lens they manufacture), permits one to transform a line engraving into aqua tint.

The stenope can render real services both to the amateur and the professional photographer. The angle embraced allows to take panoramic views too wide for the lens, monuments in confined situations, and this without distortion, exaggerated perspective, etc.

It appears that the sharpness given by the stenope would be increased by placing on the back and nearly in contact with the little hole a long focus biconvex glass (No. 30 or 40). We did not try it and cannot therefore say whether or not it is an improvement.

Moreover, the slight blurred sharpness imparted by the stenope to certain subjects imparts to them softness and harmony; portraits, for example.

Every one knows what are the inconveniences of taking portraits with a lens. Besides, the deformation, which it is difficult to correct, the definitions are too sharp, the details too profuse; it is not necessary, it is even objectionable, that one can count on a photograph how many hairs there are on the head of a person, nor to see the least defects of the epiderm. You know all the various and mostly strange means advised to avoid, at least in part, these inconven-

* A camera obscura with a small hole to obtain photographs is not new. Berry used it to take views.—*Horn's Phot. Jour.* for 1856. Emerson has studied the diameter of the holes relatively to the exposure time.—*Silliman Journ.*, vol. xxxii. Abney and Rayleigh found that for a focus of one metre, the opening should be 0.0028 m.—*Phot. News*, 1831. And Spiller has obtained pretty sharp images with an opening of 0.0014 m. and a focus of 0.26 m.—*Bull. Soc. Franc. Phot.*, 1886. D.

† Méheux has shown that the hole should be conic, very open, and with sharp edges free from striæ; the cylindrical hole giving a reflection by its interior surface in the thickness of the perforated opening. He has also constated that the sharpness of the image diminished with very small holes.

Captain Colson has made a complete study of the question, which is related in the *Bull. Soc. Franc. Phot.*, 1888. In the following table he has resumed the indications concerning the principal focal distances, F; the limits between which they vary for a change of diameter of half-tenth of a millimeter; the separation, σ, which results thereof; and the minima, D, of the distance from the object. All the numbers represent millimeters.

Diameter.	F.	Limits of F.	σ	D.
m.m.				
0.2	50	30 to 50	30	130
0.3	110	80 " 150	40	450
0.4	200	150 " 250	50	1000
0.5	300	250 " 370	70	2000
0.6	440	370 " 520	80	3300
0.7	610	520 " 700	90	4920
0.8	800	700 " 900	100	6200
0.9	1000	900 " 1110	110	11240
1.0	1230	1110 " 1360	130	15110
				C. D.

iences : Slight displacement of the focus during the exposure time, the prelighting of the film, a little separation between the cliché and the paper upon which the image is printed. Well! with a stenope all this is not necessary ; there is no deformation, more truth in the relation of the planes than with a lens, and those objectionable little details —which require such a delicate retouch—are softened, blended in the whole. In a word, portraits taken with a hole are more like oil paintings. Hence, the photo portrait so obtained will render greater service to the painter. Often a person who wishes to have his portrait painted has not time to pose. It is then made from a photograph ; but for the artists it is more difficult to paint in this condition. If the photograph has been made without a lens, this is different. Moreover, as said above, the exposure time is not exaggerated, and generally from thirty to sixty seconds suffice. It is rather long, no doubt, and it would be difficult for a lady to pose for such a period, but the result is so perfect at the point of view of the proportions that photography without a lens will likely have a great success, both for portraiture and landscapes.

Hence, provide a stenope ; it is not expensive and you will have an apparatus which in a great many cases will render to you very great service.

G. H. Niewenglowski.

Notes and News.

Next week, THE PHOTOGRAPHIC TIMES will contain the first of the series of prize pictures exhibited at the Vienna International Exhibition.

Stereoscopic Photography is on the increase. A constantly increasing number of stereoscopic hand cameras are being sold.

The New York Camera Club opened its Spring Exhibition, consisting of the work of members of the Club, with a private view Saturday evening, March 19th.

Do you read the advertisements in THE PHOTOGRAPHIC TIMES? They are worth reading.

George R. Angell, the photographic merchant of Detroit, Michigan, has been visiting in New York and Boston.

Less than 300 copies of "The American Annual of Photography and Photographic Times Almanac" for 1892 remains unsold. Other issues are at a premium.

At a recent meeting of the Franklin Institute, Mr. John Carbutt said the Institute ought to show its appreciation of the work of Mr. F. E. Ives on "Photography in Colors of Nature," and moved that a committee take up the work and investigate it with a view to making a suitable award in recognition of Mr. Ives' labors. The motion was agreed to.

PLAIN PHOTOGRAPHS PROJECTED IN COLORS.

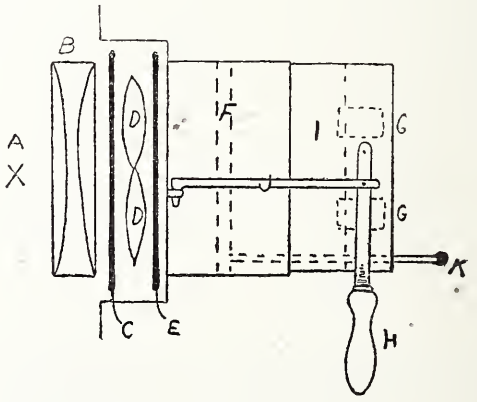
THROUGH the kindness of the inventor, Mr. Albert Scott, of Westan-super-Mare, we have had an opportunity of examining and trying his new lantern, which is termed the Verak. The general arrangement displays great ingenuity, and the results as seen on the screen are very striking.

In order to see transparencies in color, negatives must be taken four on a plate (isochromatic), each lens being provided with a colored screen ; these colors are green, blue, red, and violet.

To make the exposures of the same duration the lenses are provided with stops of different sizes. Transparencies are made from the negatives, which by preference should be somewhat dense to produce brilliant colors.

The four transparencies contained on the one plate present different local gradations of intensity according to the colors of the object photographed.

The cut shows the order in which the lenses, slides and



colored screens are placed in the lantern : *A*, the light ; *B*, main condenser ; *C*, screen, containing the four colors through which the negative was exposed ; *D*, set of four auxiliary condensers ; *E*, the Verak slide ; *F*, registering lens ; *G*, four projecting lenses ; *H*, lever for focusing ; *I*, sliding tube containing the four lenses ; *J*, fulcrum for focusing lever ; *K*, rod by which *F* is moved.

The transparencies are placed respectively in front of the same colors through which they were photographed, and when they are projected on the screen, may at first present the appearance of four pictures in the different colors in a confused state. These are registered by moving the handle *H* sideways, parallel with the screen, which gives a twist to the tube *I*, whilst they are finely adjusted or centred by pushing in or withdrawing *K*, which actuates the lens *F*. In the case of a photograph of a shop front, the various colors of goods in the window presented a fine appearance, the different colors being well depicted.

Owing to the density of the colored screens through which the light has to penetrate, a strong illuminant must be employed. With a blow-through jet we obtained pictures about four feet square, but with a mixed jet of large bore there is no reason why a picture twice the size should not be produced; but in this case the audience would require to be some distance from the screen so as to overcome the difficulty of exact registration, for it must be remembered that the pictures being taken from points slightly apart, *absolute* registration is impossible, but by confining the projected pictures to somewhat small diameter, this defect is lessened, and unless viewed at close quarters it is not noticeable.

In the four foot picture spoken of, the lantern was placed about ten feet distant, whilst the pictures looked best from a distance of several feet beyond this.

We projected about two dozen slides, which Mr. Scott informs us are *apprentice* work, but after one gets fairly in working order, there is no doubt that very fine results can be obtained.

Arrangements are being made to publicly exhibit the effects produced by the Verak, and those who are privileged to be present will see something of a decidedly novel character.—*The Optical Magic Lantern Journal.*

THE PHOTOGRAPHIC SOCIETY OF PHILADELPHIA.

A STATED meeting of the Society was held Wednesday evening, March 9, 1892, the President, Mr. John G. Bullock, in the Chair.

The Board of Directors reported the election of the following active members: Henry Pettit, Francis B. Warner, Wikoff Smith, Samuel P. Sadtler, Harry W. Jayne, M.D., Justus Henry Schwacke, Charles T. Goodwin, James F. Wood, Harry Ashmead Lewis, Charles H. Adams, Paul J. Sartain, M.D., Elisha Douglas Shaw, Charles W. Beck, Jr.

On the evening of February 23d, the first of the series of special entertainments was given at the Association Hall. It consisted of an exhibition of lantern-slides representing the work of about fifty members of the Society, and was well-attended by an appreciative audience.

At the conversational meeting, February 24th, Interchange lantern-slides from the Detroit Lantern and Camera Clubs were shown.

Nominations for offices and directors for 1892–'93 were made. On motion of Dr. Mitchell, with a view to increasing the revenue of the Society and extending its usefulness, the incoming Board of Directors were requested to consider the feasibility of establishing some form of associate membership.

Mr. Cheyney introduced a resolution to amend the by-laws so as to make the initiation fee of active members $10 instead of $5, as heretofore. In accordance with the rules action on the proposed amendment was deferred until the next stated meeting.

Mr. Cheyney read a paper on "Photographic Objectives," which was discussed at length by the members.

Mr. Pancoast asked if it would not be a good thing for manufacturers to mark on the lens-tube the exact equivalent focus, in addition to the optical centre, as suggested by Mr. Cheyney.

Mr. Cheyney moved that a "Committee on Standards" be appointed by the President, with power to appoint sub-committees, relative to such standards as were necessary to be adopted in connection with the description and marking of lenses by manufacturers.

Mr. Pancoast inquired whether, in a batch of say fifty lenses supposed to be of 10-inch focus, there would be much variation.

Mr. Redfield said that one of his lenses, nominally 11-inch focus, was actually 12-inch equivalent focus, as near as he could calculate.

Mr. Cheyney had had lenses which varied as much as two inches, and Mr. Carbutt mentioned certain variations in lenses in his possession, which were made by celebrated makers.

Dr. Mitchell called attention to the new lens made by the Bausch & Lomb Company—the Zeiss Anastigmat,—made of the new Jena glass. This lens was constructed on a rather different principle from others. It was a double combination, the back combination consisting of three lenses cemented together, while the front combination consisted of two. The makers claimed for this lens that it was entirely free from astigmatism, and that it covered the plate sharply from the centre to the edge without any diminution in the illumintion; that it worked more rapidly than the ordinary lens, and was, of course, absolutely rectilinear.

It was particularly a wide-angle lens, having about the same length of focus and angle as a Ross Portable Symmetrical. He (the speaker) had not seen the lens, but had simply given a synopsis of what he had read in the catalogue.

In response to a remark from Mr. Wood, who stated that he could turn the rack in focusing quite a little distance to and fro without any apparent effect on the sharpness of the image.

Mr. Cheyney said that distance was covered by the depth of focus of the lens. An optician had told him that as the blue rays were refracted closer to the lens than the yellow rays, in getting a fine focus always shorten up and then rack out; don't go out and then come in. Thus they would get a finer focus, because if the eye made a slight error, by this method they would get advantage of the fact that the blue rays which made the picture ran a little closer in.

Mr. Ives stated that lenses might be over or under-corrected, and some lenses would have the chemical focus back of the focus of the yellow rays, and others in front. The majority of lenses were supposed to be exactly correct for the centre of field, but this was seldom the case. He had had lenses with the chemical focus back of the visual focus. Such lenses used to be quite common some years ago.

Dr. Sharp, referring to the new Jena glass, said that it was used quite extensively in microscopical lenses, and it was far superior in that it did away with a great deal of refraction, gave a flatter and better field, and was much finer for photo-micrography.

(*To be continued.*)

THE CALIFORNIA CAMERA CLUB.

THE California Camera Club has held its annual meeting for the election of officers.

President G. W. Reid having sketched the history of the club for the year, Secretary T. P. Andrews gave the following particulars:

Expenses of the year, $4,735.05; receipts, $4,780.33. Sixty-seven active, twelve associate, and 286 subscribing members were added to the roll in 1891.

The following officers were elected for 1892: President, H. B. Hosmer; First Vice-President, H. C. Tibbitts; Second Vice-President, S. M. Smith; Secretary, T. P. Andrews (re-elected); Treasurer, G. W. Reed; Corresponding Secretary, C. A. Adams; Librarian, H. C. Owens; Directors, A. A. McFarland, E. L. Gifford, G. R. Butler, W. J. Street.

The meeting terminated with an exhibition of lantern-slide views, illustrating subjects collected in all parts of the world, which were most artistically rendered and described to an interested audience.

The Editorial Table.

Tasdrenkalender für Amateur Photographen, Vol. 1892, by Mr. Dr. A. Miethe. Berlin: Rudolf Mückenberger.

This is a very neat book, containing the information on matters photographic generally found in works of this kind. A large collection of formulæ and useful recipes, exposure tables, etc., are here. Very interesting to the German amateur are the synonyms of chemicals used in photography.

The book resembles the "Deutsche Photographen Kalender" of Karl Schwier, but is arranged for the use of amateurs.

Nine half tone engravings after negatives by renowned amateurs embellish this newest year book, which we can recommend to the many American photographers familiar with the German language.

Mr. Edward H. Burdick, of Syracuse, N. Y., sends us a flash-light picture made with the 4 x 5 Waterbury lens and says: "You may be interested in seeing what the 'Waterbury' lens is doing in the way of 'flash-light' pictures in the hands of the veriest tyro in the art. My experience in 'flash-light' work is of the most limited kind, this being the third picture I have ever tried in that way. The other work of this sort which I have attempted is about on a par with this, and I am convinced that the range of possibilities with the 'Waterbury' lens is unlimited."

The work shown by the sender is indeed of first-class quality, and he may well be proud of his accomplishments as well as of the convenient instrument in his possession.

Record of Photographic Patents.

470,783. Camera. Andrew B. Dobbs, New Haven, Conn.

Queries and Answers.

229 J. M.—Could you furnish me with a receipt for making the kallitype paper No. 2, the one which has the nitrate of silver included with the iron solution?

229 *Answer.*—We do not know what you mean by kallitype paper No. 2.

Paper sensitized with an organic silver salts is made as follows:

Float the paper on a solution of

Sodium ferric oxalate	1 ounce
Water	4 ounces

When dry sensitize upon a solution of nitrate of silver, 1 ounce to 10 ounces.

Print till the deepest shadows are visible and develop with tartrate of sodium and potassium, to which a little borax is added, and about 1 grain of bichromate of potassium to every 10 ounces of solution.

Fix in water with a few drops of ammonia in it.

230 J. M. L., Wabaunsee, Kan.—(1) Has the formula given in "Gelatine Ferrotypes," PHOTOGRAPHIC TIMES, January 8th, been tried on Phœnix argentic ferro plates—will it work on *them?* I use the Phœnix formula but can't prevent the "yaller." (2) Will some one with experience with these plates tell us how to get "clear whites, good middle tints, and transparent blacks?"

230 *Answer.*—(1) The experiments described on page 13, Vol. XXII. of PHOTOGRAPHIC TIMES, were made on Phœnix ferro plates. (2) There is no difficulty to attain to good results. Expose sufficiently, develop properly and follow strictly and in every particular the formula stated above.

231 A. B. L.—Will you please inform me through the medium of THE TIMES what the best process is for obtaining impressions or cuts for the newspaper direct from the negative.

231 *Answer.*—Photo-engraving, or printing by photo-mechanical means, is a particular and distinct branch of photography, which to describe in all its details within this column is impossible. But we advise you to read Dr. E. L. Wilson's excellent book on the subject, or that by Carl Schronbstaedtor, who treats the matter very concisely and comprehensively. Either of these books can be had through The Scovill & Adams Co.

232 W. R. JONES.—Kindly inform me through the intelligence column of THE PHOTOGRAPHIC TIMES, (1) Whether a lens with 5½ "back focus" must be moved closer to or farther from the plate to focus? (2) Also kindly inform me of some medium-priced 4 x 5 instantaneous rectilinear lens which you can recommend.

232 *Answer.*—(1) That depends upon the original position of the camera. For detailed information see page 312 and 313 "American Annual of Photography for 1892."

(2) The Gundlach "Star" $9 00
" " Rapid Rectigraph 20 00
" Steinheil No. 2, Series II 28 00

The Scovill Instantané and others of similar construction cost $30 and more.

Those above named we can well recommend.

CHAUTAUQUA SUPPLEMENT

TO THE

Photographic Times.

CONDUCTED BY PROFESSOR CHARLES EHRMANN.

MARCH, 1892.

NOTICES TO STUDENTS.

THE constantly increasing number of students, their accomplishments, diligence and enthusiasm, has proved the Chautauqua School of Photography to be a progressive institution. Many graduates continue to avail themselves of instruction, and improve accordingly in theoretical knowledge and in practice. To encourage them to continuous efforts, and to reward them, the managers of the School have concluded to admit them from year to year to additional examination, and affix eventually seals of different colors to their first diploma, the instructor, however, reserving for himself the right to bestow seals to students of more than usual attainments, without passing them through examination.

The seals will be of the primary spectrum colors, consecutively of blue, yellow, and red.

The practicing class on the Assembly Grounds will resume work on Tuesday, July 5th, at the old headquarters adjoining the postoffice, on the corner of Pratt and Centre Avenues, opposite the Children's Temple. The instructor will be on the grounds by July 1st. Parties intending to join the class are requested to report immediately after their arrival.

We call upon all our members and ex-members of the different classes to assist in making the School exhibition of 1892 the best ever held. Several of the graduates have sent pictures for exhibition, and many have promised to do so. We want you all to be represented, by photographs on paper or on other material, and mainly by good lantern-slides.

A number of amateurs not connected with the School have offered to exhibit specimens of their work. We accept their offers, with many thanks.

By request of many of the competitors for Chautauqua diplomas, we will henceforth publish the rating of examination papers returned as fast as they come in, and will continue to do so till the last supplement of the year, that of May.

For the yellow seal—

Student No. 476.....100 per cent.

For the blue seal—

No. 476.....100 per cent.
No. 207..... 99 per cent.

For the white seal—

No. 487.....	100	per cent.	*Cum laude.*
526.....	100	"	
495.....	100	"	
484.....	100	"	
482.....	98½	"	
555.....	98½	"	
553.....	98½	"	
492.....	97½	"	
489.....	97	"	
486.....	96	"	
516.....	90	"	
380.....	88	"	
418.....	81½	"	

Diplomas will be awarded to those competitors only who exhibit specimens of work.

THE EXCHANGE CLUB.

The amendment to the constitution of the Club, offered by No. 476 and seconded by the instructor, has been put to the vote of all members. Of votes returned there are 8 in favor of and 3 against the amendment. Eleven votes do not represent a quorum of the Club. The amendment is laid upon the table.

We hope and expect all will be satisfied; those especially who constantly complain about the large editions of prints required.

QUERIES ANSWERED.

No. 553.—1. Kindly tell me what causes these bluish spots on aristo prints (please see enclosed proofs)? The paper is N. Y. brand.

2. I would like to know where I can read about the causes that turn the plates yellow during development, and the remedy against it.

3. I would also be glad to have a table explaining the sensitometer numbers attached to packages of plates, of different brands.

Answer.—1. Collodion aristo paper does but rarely tone as uniformly as gelatine paper, but the New York aristo paper being of a gelatine basis, we

should not find fault with the paper itself. The failure in obtaining uniform tones is due probably to the fact of the paper not having been in constant contact with the combined fixing and toning bath. Keep the prints moving as long as they remain therein. When the print is removed from the bath, do not merely throw it into water, but keep the water running upon it. The toning bath having penetrated the gelatine film, will continue to act, and so it may occur that parts of the print not quite submerged may attain to a higher tone than the rest of the picture.

2. The oxidation products of eikonogen and hydrochinone have the property to stain the gelatine film yellow, when development is much prolonged. Para-amidophenol hydrochlorate is free from this annoyance ; it resists oxidation, for which reason its solutions may be employed for developing many plates without perceptible reduction of its force, or the fear of producing stained negatives.

3. The relative sensitiveness of emulsion plates is determined by means of instruments known as sensitometers, of which that constructed by Leon Warnercke is considered the best, although not perfect in every direction. English plate makers have adopted its use almost thoroughly, but in this country it is used but by few. The others measure sensitiveness by means of the scale photometer; others again make the wet collodion film, an uncertain quantity, a unit, while others again have adopted devices of their own. From this want of unity of our manufacturers, it may occur that plates made by different makers, and numbered respectively 22, 27, 35, 40, may after all be of the same or nearly the same sensitiveness. You will perceive, our sensitometer numbers are not at all reliable, unless they refer to plates of one and the the same maker, and the impossibility to construct tables under present circumstances.

It has been proposed to measure sensitiveness by means of the spectroscope, certainly the most reliable method.

No. 93.—I have lately stripped some of my old negatives with the use of hot water, and have saved the combined mass of gelatine and silver; what I would like to know is how to separate the silver from the gelatine. Kindly let me know at your convenience.

Answer.—Add sufficient water to the skins, and boil till the mass has liquefied ; then add sulphuric acid, which will destroy the viscosity of the gelatine and allow the silver to settle. Collect upon a filter, wash, and melt it down.

The whole operation will not be of profit on account of the very little silver present in a developed and fixed film. Remember, but from 5 to 7 per cent. of the whole silver employed constitutes the picture deposit.

No. 44 wants to know if the *Semper Idem* plate is yet in the market, or is there another of equal quality.

Answer.—Take the Carbutt Eclipse by all means.

No. 154 had accidentally dropped a copper penny into an old hypo bath left it there for several hours, and found finally a considerable amount of silver deposited upon the copper. She wants to know whether or not an old hypo bath could not be used for silvering copper objects permanently and producing a sufficiently thick deposit of the precious metal.

Answer.—You can produce a very perfect deposit of silver by scouring the copper well, that is, free it from oxide or dirt. If a thicker deposit is wanted, connect a wire with the object to be silvered and a piece of zinc. To keep up the quantity of silver in the bath, add pieces of freshly silvered paper to it, when a sufficiently thick layer of silver may easily result in time.

No. 572.—Will you please tell me if, in your opinion, the "Star" lens of Gundlach is enough better than my Waterbury for general use to make it advisable to buy one?

Answer.—Notwithstanding the excellent quality of the Waterbury B lens, the Gundlach 5 x 8 Star has advantages over it. It is of the rectilinear type, and covers the plate completely, and faultlessly sharp with stop $\frac{f}{32}$. With stop $\frac{f}{22}$ an exposure may be made in a fractional part of one second, and for portraits up to cabinet and boudoir size, it works exceedingly well and rapid.

No. 489.—(1) I have prepared some stock solution for blue prints. It has not been filtered yet, but A solution has a brown sediment settled at the bottom of the bottle. (2) B solution is clear and of a beautiful bright red color, but at the bottom of the bottle there still is some red prussiate of potash undissolved. Is it all right? (3) It is now almost a week since it was prepared. As I shall only float a few pieces at a time I shall only take a small quantity of the solution, so would like to know if it can be used more than once to float the paper, and if I must have a dish or tray purposely for it?

Answer.—(1) A precipitate in the solution of citrate of iron and ammonia indicates the article to be impure. (2) The whole quantity of ferricyanide of potassium must be thoroughly dissolved

in the prescribed quantity of water. (3) The two solutions being made strictly after the formula, measure out equal volumes of each, mix, pour in a level tray and float the paper upon it for not longer than a minute. The mixture is used but once; it does not keep. Any tray will do, provided it is perfectly clean and not of metal.

No. 570.—Will you please inform me what I will need in the way of implements to mount the Omega prints with, and how I am to do it?

Answer.—Squeegee the print upon a tintype plate, on ebony or finely polished plate-glass. Allow to dry without heat, when it will come off with beautiful gloss; trim, and without moistening, apply a good stout starch paste, and transfer to the mount. Lay upon it a piece of clean paper, and with a paper knife, or other straight-edged utensils, expel all superfluous paste from between mount and print. Dry spontaneously; the original gloss will be retained.

No. 491.—Would you please be so kind as to tell me how to manipulate the Omega paper? No printed directions were in my package. I have read carefully each item in TIMES through 1891, but I don't know how to dry it—it sticks to everything. Of course I can try to follow directions for toning, as in THE PHOTOGRAPHIC TIMES, but I can't manage the sticking propensity.

Answer.—Omega paper is coated with chloride of silver emulsified with gelatine. When in a moist state, such paper must naturally adhere to anything brought in close contact with it. If you do not wish the print of high gloss, as obtained by squeegeeing, dry by merely placing it upon a clean piece of paper, face up, then trim and proceed as described in answer to No. 570, and burnish, if you like, on the "Acme" burnisher, which excellent utensil you can purchase at the stores of Scovill & Adams Co. The same firm will have soon a combined fixing and toning bath made after our own formula, till when we advise you to use the bath made by the manufacturers of the paper. Judge of the tone by looking at the print by transmitted light; when the color appears to tone purplish, stop.

No. 582.—Can you tell me how to save a negative that is spoiling? I have one of the first ones that I made, 4 x 5, that was not washed well enough and then varnished with Mountfort's crystal varnish. It has become so yellow I can only get about two prints in a day in bright sunlight.

Answer.—To correct or improve a negative of the character described, it must be devarnished in the first place. Soak it for several minutes in absolute alcohol, and when the varnish film has softened wipe it off with the aid of a soft camel's hair brush; finally rinse off with two or three changes of pure alcohol. After the varnish has been taken away, attempts to remove the yellow stain may be made. If the stain is the result of the developing agent not being entirely removed before fixing, or if the stain results from oxidized developer, soaking the plate in sulphurous acid water, or in a solution of sulphite of sodium with sufficient sulphuric acid added to evolve large volumes of sulphurous acid, you may be successful. Is the negative of such intensity as to allow a slight reducing of it, try ferricyanide of potassium. But when the stain is the result of improper fixing, that is, when the argentic sodium hyposulphite formed during the process is not entirely dissolved in an excess of hyposulphite of soda, and when on exposure to light such a plate turns yellow, indicating the formation of sulphide of silver, there is no remedy.

Early books on gelatine emulsion photography speak of the invisible bromide of silver removable only by the plate remaining in the fixing bath for a long time. In reality, is this the compound spoken of above, it is sensitive to light, the result of exposure being sulphide of silver.

No. 557.—(1) Is 8 ounces water, 1 grain pure chloride gold, and 25 grains fused acetate the proper formula?

(2) Is this toning solution durable, that is, will it keep, so it can be used over again, by properly strengthening with gold and acetate sodium?

(3) Suppose one should make up a quart of toning solution, containing 4 grains of gold and 100 grains fused acetate, and should wish to retain this as his toning bath, how should the strengthening stock solution be made, if any?

(4) By using a strengthening solution in a more concentrated form would it answer the purpose?

(5) By using a concentrated stock solution for strengthening the bath, is there any danger of overcharging the toning bath with the acetate of sodium?

(6) If a stock strengthening solution can be used, would a solution made up as follows answer:

Water	15 ounces
Gold	15 grains
Fused acetate of sodium	375 grains

(7) With this bath if practical I presume you would use the bicarbonate of soda in the next last wash water.

(8) In one of your letters you advise reddening the prints with acetic acid in next but last wash

water. When you use the bicarbonate of soda in the wash water, how do you manage this, put them in together? The acetic acid seems to make the albumen hard and greasy looking sometimes, and then they do not seem to tone right. Can this be avoided?

Answer.—(1) The bath is certainly strong enough; it will last till all its gold has been exhausted. But remember, 1 grain of pure terchloride of gold cannot tone more than from ten to twelve 5 x 8s on albumenized paper.

(2) and (3) To strengthen a bath of doubtful concentration and when partially exhausted, a much stronger solution than that prescribed by the formula is wanted.

(4) It will.

(5) There is not, provided you keep account of the material used.

(6) It will answer.

(7) Yes, in the case of ready-sensitized paper.

(8) Reddening of prints by means of acetic acid refers to freshly-sensitized paper only. A very small quantity of the acid, say 1 drachm to a quart of water, is enough to make the prints red. How such a small amount of it can have a hardening influence upon the albumen film we cannot understand. The ready-sensitized paper of commerce is generally made durable by means of citric acid, and the prints are red, *eo ipse*. To neutralize any acid still present we add bicarbonate of soda to the wash water, but acidifying again is certainly not to be thought of.

Pictures Received.

No. 506.—Snow landscapes taken with a hand camera. Very fine and accurate work, nicely mounted and burnished. If you really do want a better instrument why not take a "Henry Clay"?

No. 536.—"Ice Cascades," taken with a Waterbury B lens, of very beautiful scenes in the cut of the P. R. R., near Jersey City. Very poorly done, every one of the five specimens sent being very much under-exposed. There is but very little light in the deep chasm between rocks, and an exposure of one and a half minute with stop *f*/35, Carbutt B plate, would probably lead to perfect results, but thirty and forty-five seconds is far too short to give an approximately good picture. With such short exposures comparatively a very much more sensitive plate would be required.

No. 580 has six very nice and neat little pictures made with the Scovill "Knack" camera. They are surprisingly good, and pronounce strongly in favor of the convenient and cheap instrument.

No. 1. Picture of horse, instantaneously taken on Carbut film No. 27. Very good indeed. No. 2. Also a horse, a trifle harsh. No. 3. A railroad bridge. Under-exposed. No. 4. A game of base ball, is an excellent photograph. No. 5. Another horse, printed too dark to show the quality of the negative to best advantage. No. 6. Railroad bride, instantaneously taken, and afterwards intensified with mercury, which has spoiled the negative, for it prints entirely too harshly.

These pictures are very encouraging, and we wish the student continuous good success.

No. 554.—Three very fine 5 x 8s, printed on Omega paper and well toned.

If the fair student intended to exhibit these pictures at the Assembly Grounds, we can assure her she could not have chosen better specimens, but for that purpose we admit only mounted, and if possible burnished, photographs. So we beg of her to send another set, in the condition prescribed by the rules of the School.

No. 560.—Several prints from excellent negatives, one of cottage, deserves much praise for accuracy in work; another, a reaping machine, with man and horses, is beautiful; and another picture, of a huge mass of rocks rising from a lake or large river, is highly interesting. We would wish to see such interesting representation described in detail.

Unfortunately neither of these prints are up to our expectations; they are made on Omega paper, and very badly toned. We hope to see better prints from these negatives.

No. 569.—Pictures from negatives taken on the Assembly Grounds. The steamer "Mohawk" and the C. L. S. C. building, on 6½ x 8½ plates, are very beautiful indeed, and several 4 x 5 of the "Cincinnati," the "Buffalo," the "Jamestown" and others are fine specimens of what the Waterbury hand camera is capable of doing in the hands of an experienced operator.

No. 205.—Three 5 x 8s of scenes in the mountains of Vermont. Very good. The student is improving rapidly.

Many "Queries" and "Pictures Received" must stand over till later issue of the Supplement.

THE PHOTOGRAPHIC TIMES.

AN ILLUSTRATED WEEKLY JOURNAL DEVOTED TO THE ART, SCIENCE AND ADVANCEMENT OF PHOTOGRAPHY.

Issued every Friday.

W. I. LINCOLN ADAMS, Editor.

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423 Broome Street, New York.

Commercial Intelligence.

For 1893.—The preparation of "The American Annual of Photography and Photographic Times Almanac for 1893" has actively begun. Several pictures have been accepted, a number of articles have been sent in, and eight pages of advertising have been taken. On account of the increased circulation of the publication the advertising rates have been slightly increased. For 1893 they will be as follows:

Full page.....$30
Half page..... 18
Quarter page..... 11

When it is remembered that these advertisements, the articles and illustrations were sent in entirely without solicitation, it shows an encouraging interest in the publication.

With an order for a page of advertising the other day, the following words of testimony were received:

"We take the page ****** at $30. ***** We don't blame you for raising the price. The 'Annual' is bringing us much new trade, many inquiries, and is *profitable* to us. You lead over all our other advertisements combined."

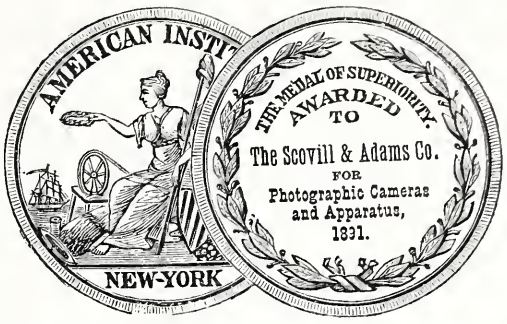
[Signed]

E. W. Newcomb & Co.

John Carbutt has recently introduced a fluid stripping for use in stripping the gelatine negatives from Carbutt's stripping plates, formerly a pellicle negative, *thin, tough and flexible*, capable of being printed from either side, and far superior to gelatine, either when used fluid or as a skin. *No heat required*, and dries in a few hours. Full particulars for use accompany each bottle.

Mr. Sam C. Partridge, the successful photographic merchant, of California, after an illness of over five months, is now convalescent, and hopes to be able to resume the management of his growing business within a few weeks.

The Special Bronze Medal of Superiority, awarded by the American Institute to The Scovill & Adams Co.



for photographic cameras and apparatus, 1891.

The Best is the Cheapest.—Though the Reifschneider Albums are more expensive than other albums for photographs, they are really the cheapest in the end, as they are all so carefully and substantially made that they outlast all cheaper class of albums many times over.

"I must confess that your publication is a first-rate one."

A. Audra, Paris, France.

"I am greatly pleased with your valuable paper. I am an amateur photographer, and I find it a very great help; and shall continue to subscribe to it, so long as I can possibly raise the *tin*. I could not do without it."

Frank Hege, Salem, N. C.

The following circular letter has been received which explains itself. We print the letter entire:

JACKSONVILLE, Fla., March 12th, 1892.

Dear Sir: In addition to our large stock of books, stationery, fancy goods and artists' materials, we have now added a complete stock of photographer's supplies, and hope to be favored with your orders for anything you may be in need of in our line.

Our Mr. Bade, who has charge of the photo. department, has had 17 years' experience and he will give your orders his entire attention, and will be pleased to quote you lowest prices and cheerfully furnish estimates on outfits, etc.

We will issue a catalogue as soon as we can, and will be pleased to send you one. In the meantime will fill your orders and meet any quotations you may have. We can sell you as cheap as any dealer and save you considerable fn freight charges, on account of our cheap freight rates to and from here.

We solicit your correspondence and hope to be favored with your orders, which we promise our prompt and careful attention. Yours truly,

H. Drew & Bro.

The Scovill & Adams Co. report that a full line of porcelain ware has just arrived. Full particulars as to prices, etc., may be obtained by addressing them.

Business Notices.

WANTED.—Two first-class traveling men, capable of demonstrating films and other photographic specialties. Apply by letter only to
THE EASTMAN COMPANY,
Rochester, N. Y.

EXCHANGE.—An E♭ Clarionet, Grenadilla wood, 13 G. S. keys, for either a 5x8 View Camera, Hand Camera, pair Stereo. Lenses, or a Wide-Angle Lens.
A. T. TWEEDIE, Cadillac, Mich.

FOR SALE.—Photo. Outfit; cost $115; Camera, Lens and accessories. Voigtlaender Euryscope Lens. For sale low. GEORGE W. BURCH,
91 Asylum St., Hartford, Conn.

FOR SALE.—Half interest in a well-established, good paying photographic stock business in New York City. Having other business cause for selling. Address for terms, etc.,
"STOCK," care of THE PHOTOGRAPHIC TIMES.

FELT BACKGROUNDS, $1.50 per yard; a 6 ft. x 6 ft. ground only $3, by mail $3.35.
THE SCOVILL & ADAMS CO.

PHOTOGRAPHIC BROKERAGE.—Established especially to furnish carefully selected outfits of any make or grade to those living at a distance. Address
C. M. BROCKWAY, 33 Worth St., New York.

NEW GOODS.—Cheapest Reversible Back Camera made; spring ground glass plate-holder and canvas case. 5 x 7 size, $12; 5 x 8 size, $14 and upwards. Mail orders promptty filled by
C. M. BROCKWAY, 33 Worth St., New York.

LIGHT, COMPACT AND ELEGANT.—The new Gray Hand Camera for Cabinet size, or for stereoscopic pictures. For circulars, address
C. M. BROCKWAY, 33 Worth St., New York.

WANTED.—April 1st, a strictly first-class printer and toner. One who can retouch and general assistant preferred. Must be a steady, sober, conscientious workman. Good references, with samples, and photo of self required. STUBER STUDIO, Louisville, Ky.

WANTED.—To buy cheap for cash, an 11x14 Portrait Camera, with kits, etc., with or without stand; without lens. Address at once, with full description,
CHAS. L. CLARK, 56 Fourth St., Bangor, Me.

GALLERY FOR SALE in good location, well equipped for work up to 14 x 17 size, and nicely furnished. Price, $500 cash. Address N., Lock Box 573, Scranton, Pa.

FLASH-LIGHTS AND HOW TO TAKE THEM! A complete treatise on Flash-Light work. Fully illustrated by Louis Clarence Bennett. Price, 50 cents, Order a copy now from THE SCOVILL & ADAMS CO.

A FIRM OF PHOTOGRAPHIC DEALERS in London having experienced travelers calling on the best photographers throughout the country, is desirous of obtaining the agency for an American photographic specialty, not now represented in England. Address in first instance, THOMAS ILLINGWORTH,
12 Gladys Road, West Hampstead,
London, N. W.

THE FINEST Platinotype Solar Enlargements and contact prints, in black and sepia, are made by
THE PLATINOTYPE CO.,
39 South 10th St., Philadelphia.
Send for price lists.

THE UNDERSIGNED has a few 6x5 Dallmeyer Rapid Rectilinear Lenses which he will sell for 20 per cent. from list prices. These lenses are a late importation and are all warranted. Address "TOURIST,"
care The Scovill & Adams Co.

WANTED.—Choice stereoscopic negatives from all parts of the world. Address F. F. BRAILLARD, JR.,
423 Broome St., New York.

A NEW GUNDLACH LENS, covering a 5 x 8 plate, sharp to the edges, for sale cheap. Regular price $24. Will send C.O.D., subject to examination, for $18.
Address C.O.D., care THE PHOTOGRAPHIC TIMES.

THE finest-fitted Dark-Rooms in the United States are open for the accommodation of Amateurs, at 122 W. 36th Street. DARLING, Photographer.

THE ELDORADO BENCH AND WALL COMBINATION makes eight different combinations, every one of which is effective and artistic. Just introduced by THE SCOVILL & ADAMS CO. Price $20.00.

"THE PHOTOGRAPHERS' BOOK OF PRACTICAL FORMULÆ."—In order to make way for the SECOND EDITION of this popular book we make the following prices on those now in stock: Paper covers, 30 cents each; cloth, 60 cents each. Never before has a book of such great value been offered for so little money.
R. H. MORAN,
396 Broome Street, New York.

SEND FOR LIST of new "M. & V." Lenses to THE SCOVILL & ADAMS CO.

A SURE WAY TO PREVENT BLISTERS.—Use Haworth's Sensitized Paper. It won't blister. Spalding has it, so have Obrig Camera Co., and Z. T. Benson.
JOHN HAWORTH, Manufacturer, Phila.

WANTED.—Vols. 1, 2, 4, 5, 7, 8, 10, 12, 13, 17, 18 and 19 of THE PHOTOGRAPHIC TIMES, bound or unbound. THE PHOTOGRAPHIC TIMES PUBLISHING ASSOCIATION.

A BARGAIN.—A No. 6 Gray's Periscope Lens in first-class condition. List price, $22.00. Will sell for $15.00. Spot cash. Address LENS BARGAIN, care THE PHOTOGRAPHIC TIMES.

NO FUMING, NO BLISTERS.—Experiment with all the "papers" advertised, and learn. But when you want to make choice, spotless prints use WISSAHICKON SENSITIZED ALBUMEN PAPER. Tone it in compound bath and squeegee on ferro plate, if you like. Send 2 cent stamp for 4x5 sample to JOHN HAWORTH,
641 Arch Street, Philadelphia.

LANGILL. 10 East 14th Street, makes all kinds of outdoor negatives. Portrait photographers will do well to consult him when such is required. First prize for Architectural photographs, P. A. of A.

PORTE-FEUILLE CARDS.

The cards for these Albums may be quickly and securely attached to the guards after the prints are mounted and burnished.

Price-list including 25 sheets of Collins' best quality White Cards:

No. 2, 10x12 for 6½x 8½ Photographs.....$2 00
" 3, 11x14 for 8 x10 " 2 25

Price-list, including 25 sheets of Collins' White Muslin-Back Cards:

No. 5, 10x12 for 6½x 8½ Photographs.. .....$2 00
" 6, 11x14 for 8 x10 " 2 25

THE SCOVILL & ADAMS CO.,
423 Broome Street, New York.

THE PLATINOTYPE.

(PATENTED.)

Photographers can increase their business during the nolidays by advocating the Platinotype.

Send 30 cents for a specimen print, portrait or landscape, on our new heavy India Tint Mounts.

WILLIS & CLEMENTS, Patentees,
39 South 10th St. Philadelphia.

PARA-AMIDOPHENOL HYDROCHLORATE.
THE DEVELOPING AGENT OF THE FUTURE.

With para-amidophenol there is no staining of the film, as with eikonogen and hydrochinon when development is prolonged, absolute transparency and opacity is secured, and the time of exposure is reduced about 30 per cent. without injury to half-tones and middle-tints.

FORMULA FOR DEVELOPER.

Para-amidophenol (pure)	100 grains
Sodium sulphite (crystals)	3 ounces
Potassium carbonate	1½ ounces
Water	32 ounces

FOR USE.—Take 1 ounce of the above solution and from 2 to 4 ounces of water, according to the length of exposure.

The stronger the solution the greater the intensity of the resulting negative; the more diluted the solution the greater softness and more detail.

PURE PARA-AMIDOPHENOL HYDROCHLORATE,
IN ONE-HALF OUNCE BOTTLES,
$1 per bottle.
THE SCOVILL & ADAMS CO.

Employment Offered and Wanted.

(These advertisements are inserted free of cost to photographers out of employment, in order to help them find situations.)

SITUATIONS OFFERED.

A photo assistant who thoroughly understands lighting, positions, retouching, etc.; an unmarried man preferred; position permanent to right man, from April 1st. Gallery just rebuilt; everything new and first-class. We have been established thirty-six years. Beers' Photo. Parlors, New Haven, Conn.

SITUATIONS WANTED.

An operator of extensive experience in studio and field would be pleased to hear of an engagement; three years in West London studio, and three seasons traveling, taking landscapes and cathedral architecture (developed own plates) and obtained highest possible reference for same; still engaged, but desirous of making a change. Address Rupert Stearn, 72 Bridge Street, Cambridge, England.

Position as first-class operator by thoroughly experienced man; best of city references. B. Williams, 342 State St., Brooklyn, N. Y.

A thoroughly experienced retoucher desires position; best of references. Address Miss A. Scholl, 29 Cedar Street, Boston, Mass.

An expert photographer, well acquainted with both the wet and dry processes, also a good printer and toner, offers his services to a good house. Would be willing to go in a reproduction atelier or photo-mechanical concern. Address D. Rowbotham, 227 Marcy Ave., Brooklyn, E.D.

An artist of gentlemanly bearing and good address wants a position in a photograph gallery; is a good operator, and a first-class artist in crayon and water-color; would retouch a little; knows photography thoroughly in all its branches; is capable of taking charge of a gallery. Middle, Southern or Pacific Coast States preferred. Correspondence desired with first-class galleries only. Address at once, Artist, Box 524 Nantucket, Mass.

As general assistant; is twenty-four years of age and has seven years experience; is a first-class all-round man. Address "Photographer," Box 103, No. 289 Third Avenue, New York City.

NOT A LOTTERY SCHEME.

$100.00 Cash in Prizes,

GIVEN BY

The Photo American.

If you will send **TEN CENTS** in coin or stamps you will learn all the particulars. It will also entitle you to compete, besides make you acquainted with the **Cheapest** and **Best**

Illustrated Photographic Monthly

published.

$1.00 PER YEAR.

THE PHOTOGRAPHIC TIMES and PHOTO AMERICAN together for $5 per year.

C. H. LOEBER,
111 Nassau Street, N.Y.

Be sure to mention this paper.

THE CHAUTAUQUA

School of Photography.

The local class of 1891-'92 opened Monday, October 5th. Term closes the second week of May, 1892.

Class hours from 9 to 12 every Monday and Saturday.

The skylight room and laboratory used by these classes are on the seventh floor of No. 423 Broome Street, New York. (Take elevator.)

Cost of Course of Ten Lessons, including entrance fee, text book, and materials used in demonstration, $7.50.

Special Single Lessons, per hour, each, $1.

Cost of Ten Lessons in Portraiture, $10.

After completing the regular course, students are admitted to examination, and if passed, are awarded a Chautauqua diploma.

Students are admitted to the corresponding class at any time. Tuition fee, including printed lessons, subscription to the official organ of the School, and text book, $7.

For particulars apply to

PROF. CHARLES EHRMANN,
423 Broome Street, New York.

Solid Trains between New York and Chicago

VIA CHAUTAUQUA LAKE OR NIAGARA FALLS.

An Enchanting Panorama of Mountains, Forests and Streams.

The Delaware Division of the "Erie," between Port Jervis and Susquehanna, is a paradise for Amateur Photographers.

D. I. ROBERTS, Gen'l Passenger Agent.

CONTINUOUS BACKGROUNDS

Shown in Photographs with Subjects, in our new Sample Book.

Also the best and most complete line of accessories made.

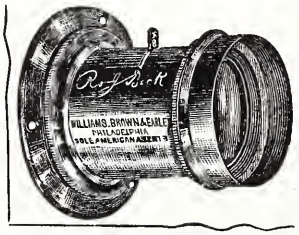
J. W. BRYANT CO.,
La Porte, Ind., U.S.A.

BLUE PAPER.

A *good* article in this line is always hard to find. The *package* paper is variable and not to be relied upon. The motive of this little "Ad." is to tell you of our *special* Blue Paper. It is made fresh every day, on imported paper; is 50 per cent. cheaper than other papers, and withal is the best. Per yard (27 inches wide), cut to any size, 25c. Send 5c. for sample. THE OBRIG CAMERA CO.,
163 Broadway, New York.

If you are thinking of Purchasing a PHOTOGRAPHIC CAMERA do not fail to write us for prices. If you wish to get SUPERB RESULTS get a

BECK LENS



Mr. JNO. C. HEMMENT, Photographer to *Frank Leslie's*, states: "It is the only lens which will do my work."

WILLIAMS, BROWN & EARLE,

PHOTOGRAPHIC SUPPLIES AND PRINTING,

Northeast corner *10th and Chestnut Sts.,* Philadelphia.

Sole American Agents for the Beck Lens.

Correspondence Solicited.

THE NEW KODAKS.

WE HAVE THEM!! $6.00 TO $25.00.

They can be loaded in the *daylight*, and we give full and careful personal instructions gratis. We develop, print and mount in albums at Eastman's prices. Only *first-class* work turned out. THE OBRIG CAMERA CO.
163 Broadway, New York.

W. F. ASHE,

Artist and Designer.

A SPECIAL lot of

BACKGROUNDS.

8 feet high at $1.00 per running foot.

New Profile Accessories of Columns Cabinets, Cottages, etc., etc., etc.

76 East 9th St., N. Y., U. S. A.
Three Doors East of Broadway.

S. P. C. EIKOQUINOL DEVELOPER.—This "ne plus ultra" developer for timed and instantaneous exposures, lantern slides and all other kinds of transparencies, photo-mechanical work and bromide paper prints is now in stock and for sale at 35 cents per bottle of 8 ounces. No other developer is now used by the members of Chautauqua School of Photography; no other has attained to equally fine results.

THE SCOVILL & ADAMS CO.,
423 Broome Street, New York.

TWO USEFUL BOOKS.

LANTERN SLIDES

AND

HOW TO MAKE THEM.

BY A. R. DRESSER.

A practical little hand-book; very complete and instructive.

Price, in paper covers, only 25 cents.

FLASH-LIGHTS

AND

HOW TO MAKE THEM.

BY L. C. BENNETT.

THOROUGHLY PRACTICAL AND FULLY ILLUSTRATED.

Price, - - - - 50 cents.

Both books sent, post-paid, on receipt of price, by

THE SCOVILL & ADAMS CO.,
423 BROOME STREET, NEW YORK.

BACK BOUND VOLUMES

—OF—

THE PHOTOGRAPHIC TIMES

ARE VERY SCARCE.

We have but a few copies of a few years, which we can supply those who desire to complete their sets, as follows:

Vols. 3, 6, 9, 11 and 14,

bound, with advertisements, in red cloth, uniform with other volumes, at three dollars ($3) each.

Vol. 15, - - - - -	$4.00
Vol. 16 (in two parts), - - -	7.00
Vol. 20 (in two parts), - - -	7.00
Vol. 20 (in one volume). - - -	6.00

Other volumes are at a premium. We cannot supply them, *at any price*, as we have none left in stock and do not know where we can get any.

The above prices are subject to change at any time.

Order at once if you want them at these prices.

THE PHOTOGRAPHIC TIMES PUBLISHING ASSOCIATION,
423 BROOME STREET,
New York City.

Photographic Studies.

SECOND EDITION.

A Collection of Photogravures from the Best Representative Photographic Negatives by Leading Photographic Artists.

THE COLLECTION INCLUDES:

"Dawn and Sunset"	H. P. Robinson
"Childhood"	H. McMichael
"As Age Steals On"	J. F. Ryder
"A Portrait Study"	B. J. Falk
"Solid Comfort"	John E. Dumont
"Ophelia"	H. P. Robinson
"No Barrier"	F. A. Jackson
"El Capitan"	W. H. Jackson
"Still Waters"	J. J. Montgomery
"Surf"	James F. Cowee
"A Horse Race"	George Barker
"Hi, Mister, may we have some Apples?"	Geo. B. Wood

Printed on Japan Paper, Mounted on Boards. Size, 11x14, in Ornamental Portfolio.

Price, - - - - - $3.00.

Sent, Postpaid, on Receipt of Price, by

THE SCOVILL & ADAMS CO.

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—OF—

THE PHOTOGRAPHIC TIMES.

Volume XXI.

We are now ready to supply our readers with bound volumes of THE PHOTOGRAPHIC TIMES, uniform with preceding volumes.

They are substantially bound in neat red cloth, with and without advertisements.

With Advertisements, complete, in two parts, $7.00
Without " " in one volume, 6.00

When the numbers of THE TIMES for the year are returned, *in good condition*, we allow full subscription price for them, charging only the cost of binding, viz., as follows:

With Advertisements, in two parts, - - $2.00
Without " in one volume, - - 1.00

A bound volume of THE PHOTOGRAPHIC TIMES, with its full and complete index, is, as it has been termed,

"A COMPLETE PHOTOGRAPHIC LIBRARY."

There are a limited number of volumes. Order at once if you want a bound volume.

THE PHOTOGRAPHIC TIMES PUBLISHING ASSOCIATION,
423 BROOME STREET,
New York City.

Of the various handsome books which America has produced, we question whether any has been issued which surpasses the *edition de luxe* of the last "American Photographic Annual" (Scovill & Adams Company, New York). Special paper, special ink, and special binding, it forms, quite apart from the merits of its contents, a book that in its get-up has never been surpassed.—*The British Journal of Photography.*

EDITION DE LUXE.

A few copies of the edition de luxe of the

AMERICAN ANNUAL OF PHOTOGRAPHY

remaining, we offer them at the very low price of $2.50 per volume. They are all printed on special laid paper, and are most beautifully and substantially bound.

1887—Bound in White Leather.
1888—In special Cloth Binding.
1889—Out of print.
1890—In full Morocco Leather.
1891— " " "
1892— " " "

Also Two author's copies of the Rev. W. H. Burbank's popular "PHOTOGRAPHIC PRINTING METHODS," printed on laid paper and bound in full morocco leather. Price $3.00.

An Edition de Luxe.—We have once or twice said that the Americans know how to engrave, and how to get up a book in an attractive form. It is not for us here to speculate as to the causes which have operated to conduce to this, but so it is.—*The St. Louis Photographer.*

PHOTOGRAPHIC DIRECTORY.

A NEW CATALOGUE

Of PHOTOGRAPHIC GOODS, entirely complete and fully illustrated, will shortly be issued by

THE SCOVILL & ADAMS CO.

F. D. LANIER WALKER,

AMATEUR PHOTOGRAPHIC SUPPLIES.

18 John Street, New York City.

Successor to C. L. LITTLEWOOD & Co.

JOHN H. DALL,

PHOTOGRAPHIC SUPPLIES,

618 and 620 Clay Street,

Established in 1850. SAN FRANCISCO, CAL.

R. M. Davis. DENVER.

The only EXCLUSIVE Photo Stock House between the Missouri River and the Pacific Coast.

"HOW TO MAKE PHOTOGRAPHS."

Containing a descriptive Price List of all goods pertaining to Photography, sent free to any address on application to

THE SCOVILL & ADAMS CO.

This space for sale,
$1.50 per insertion.
Write for particulars.

THE SCOVILL & ADAMS CO.,

Successors to

Photographic Department SCOVILL MANUF'G CO.

PHOTOGRAPHIC MATERIALS.

W. IRVING ADAMS, Pres't.
H. LITTLEJOHN, Sec'y.

Office and Salesrooms:
423 Broome Street, New York.

WHEN BUYING Photographic Cameras, be sure if you would have the best, that they are made by the AMERICAN OPTICAL COMPANY, New York, and are stamped on the front board for lens and frame for ground glass—"American Optical Co., New York.

GOVAN & CRAMPTON,

Successors to MINOTT M. GOVAN,

DEALERS IN PHOTOGRAPHIC SUPPLIES,

No. 5 Clinton Place, New York.

(Three doors from Broadway.)

FULLY ILLUSTRATED Catalogue and Price List mailed on application.

CARBUTT'S

EIKO-CUM-HYDRO DEVELOPER.

FOR SALE BY ALL DEALERS.

This space for sale,
$1 50 per insertion.
Write for particulars.

PHOTOGRAPHIC BOOKS.

Send for the Scovill Catalogue of Photographic Books and Publications.
A new edition now ready.

PUBLICATION DEPARTMENT, THE SCOVILL & ADAMS CO.

PHOTOGRAPHIC SUPPLIES.

TUCKER & BUTTS,

37 and 39 Court Street,
BUFFALO, N. Y.

J. S. LOPEZ & CO.

O'Reilly 92, Apartado 213, Havana, Cuba.

Importers of Goods for Photographers, Engravers and Painters.

Editors of the "PHOTOGRAPHIC BULLETIN."

REFERENCES IN NEW YORK, THE SCOVILL & ADAMS CO.

This space for sale,
$1.50 per insertion.
Write for particulars.

ONE DOLLAR

Sent to the Publishers by a new subscriber will obtain the PHOTOGRAPHIC TIMES for three months. The regular subscription price is five dollars per annum; single copy, fifteen cents.

THE PHOTOGRAPHIC TIMES PUBLISHING ASSOCIATION,

423 Broome Street, New York City.

Carbutt's Orthochromatic

DRY PLATES
AND CELLULOID FILMS (CUT SIZES).

Uniform, Reliable, Splendid Keeping Qualities,

COMBINED WITH A CORRECT RENDERING OF COLOR VALUES,

AND YET THE SAME PRICE AS PLAIN BROMIDE.

All contemplating a summer tour should place their orders with dealers early, to avoid the season's rush.

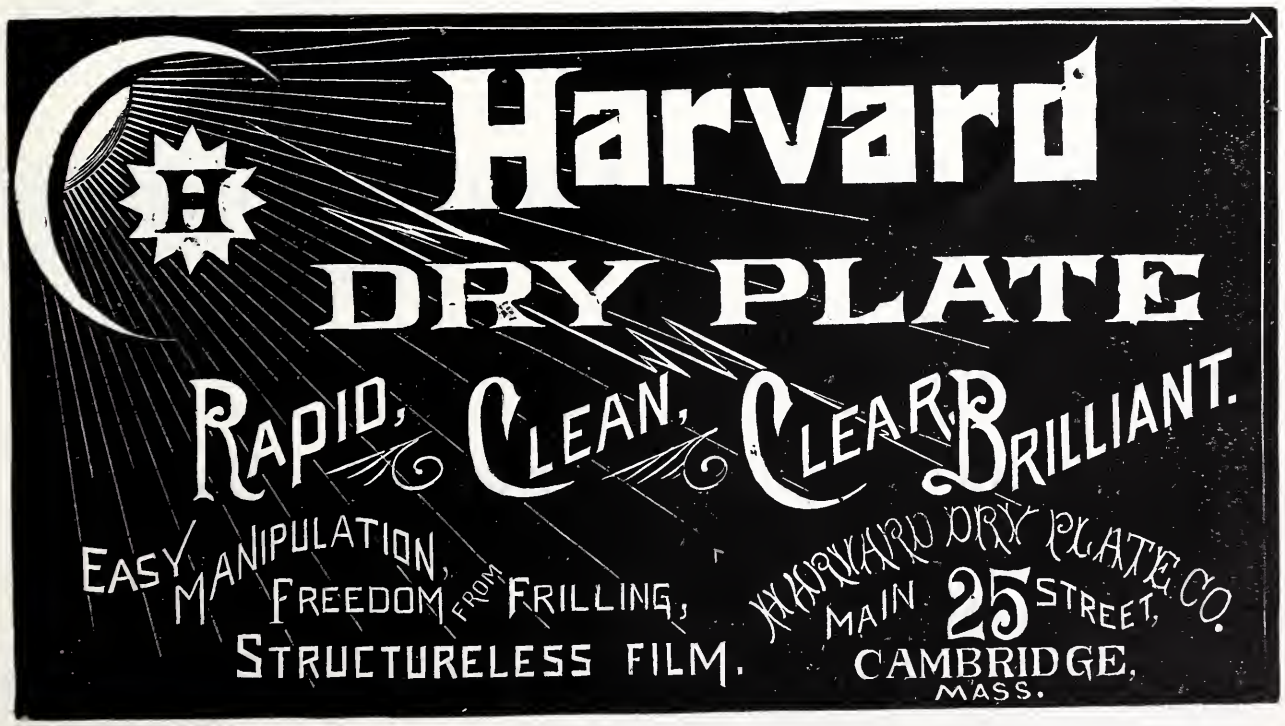
Carbutt's Dry Plates and Flexible Films are to be obtained from all dealers in photo materials. Send to factory for reduced Price List and list of brands.

Manufactured by JOHN CARBUTT,

(Pioneer Manufacturer of *Gelatino-Bromide* and *Orthochromatic Plates* in America.)

KEYSTONE DRY PLATE AND FILM WORKS.

WAYNE JUNCTION, PHILADELPHIA



A full supply kept in stock by

THE SCOVILL & ADAMS COMPANY.

HIGH GRADE ILLUSTRATIONS
FOR FINE BOOKS.

PHOTOTYPE HALF-TONE
PHOTO-ENGRAVING PHOTO-LITHO
LETTER-PRESS PRINTING.

We are now prepared to furnish **Half-Tone Blocks** for typographical printing. The same excellence which characterizes our **Gelatine Work** will be given to this, and we solicit your patronage for a trial order.

These blocks are suitable for Catalogues and the cheaper forms of illustration, but for the better grade of work we recommend the Phototype.

We are also propared to submit estimates for all kinds of Letter-Press Printing, and preparation of Catalogues in any of the above styles of work, and will in each case give the best of its kind.

F. GUTEKUNST,
813 GIRARD AVENUE,
JAS. P. HARBESON, Manager. **Philadelphia, Pa.**
Imperial Photograph Galleries, 712 Arch Street.

CATALOGUE ON APPLICATION.

SCHULTZE PHOTO EQUIPMENT CO.
HEADQUARTERS FOR PHOTOGRAPHER'S SUPPLIES.
17 CHATHAM SQ. NEW YORK

MENTION PHOTO. TIMES.

BAUSCH & LOMB OPTICAL CO.,

Manufacturers of the Popular American Standard

RAPID UNIVERSAL LENSES,

for Group work in Studios and all outdoor work, and

ALVAN G. CLARK LENSES,

on both of which there has been a decided reduction in prices.

The New and Wonderful

ZEISS-ANASTIGMAT LENSES,

of which we are the Sole American Manufacturers. In three Series, for Studio, Architecture, Landscape and Copying.

DIAPHRAGM SHUTTER,

which stands without rival.

ROCHESTER, N. Y., P.O. Drawer 1033.

NEW YORK CITY, P. O. Box 432

Send for NEW CATALOGUE, Just Out.

CHAS. COOPER & CO.,

194 WORTH STREET,

NEW YORK.

MANUFACTURING

CHEMISTS

AND

REFINERS

OF

PHOTO WASTE,

WORKS AT

NEWARK, N. J.

CLEMONS' NEW MATT-SURFACE PAPER.

SOMETHING NEW UNDER THE SUN—A REVOLUTION IN THE ART OF MANUFACTURING.

After many years of scientific research a preparation for the salting of plain photographic paper has been discovered, by which method the finest printing results are obtainable. The advantages are apparent to all.

I.—Constant use will not discolor the silver bath.
II.—Will produce the finest detail in printing.
III.—Any desired tone may be obtained from sepia to jet-black with less gold than ever before.
IV.—The *"New Matt-Surface"* paper when sensitized will keep fresh for a long time if properly stored.
V.—The price has not been advanced.

For sale by

THE SCOVILL & ADAMS COMPANY,
423 Broome St., New York

Sample Sheets, by mail, 10 cents each.

ESTABLISHED 1865.

JNO. G. HOOD, CHAIRMAN. WM. D. H. WILSON, TREASURER. JOS. P. CHEYNEY, SECRETARY

WILSON-HOOD-CHEYNEY COMP'Y,

(LIMITED.)

Photographic Supplies,

AND THE

ROSS LENS.

Full Assortment of White's Posing and Lighting Specialties.

∴ No. 910 Arch Street, ∴

PHILADELPHIA.

"THE KNACK."

NOT THE CAMERA,

BUT THE BOOK.

Written expressly to help the beginner in perplexity.

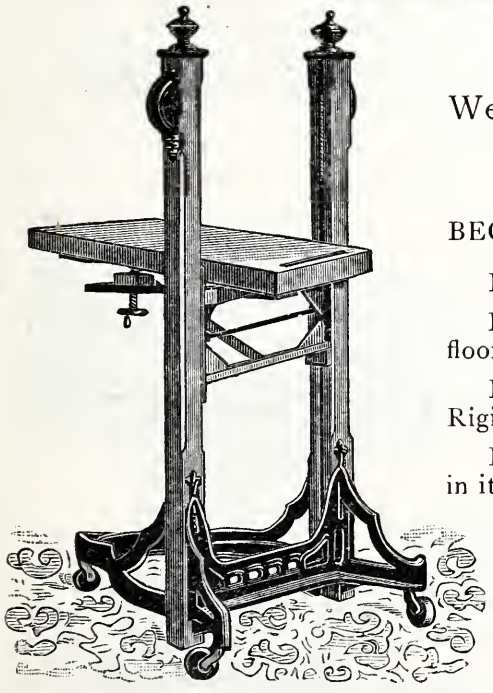
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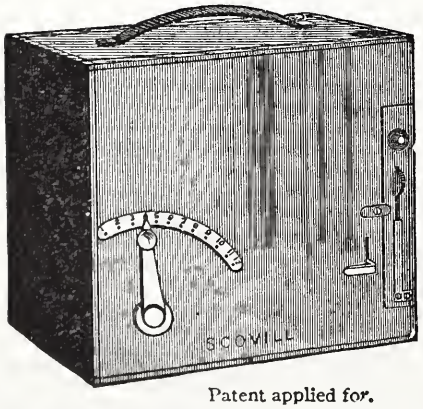
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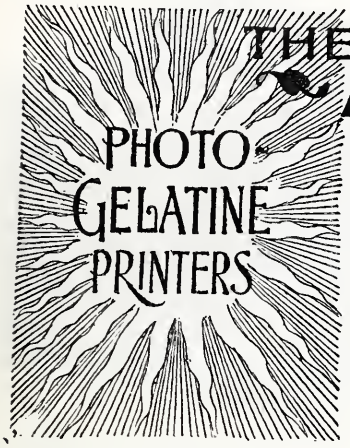
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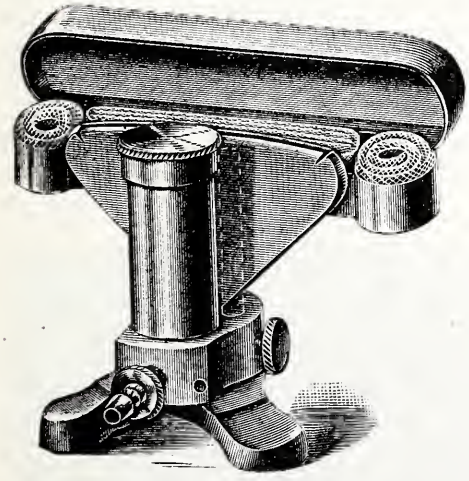
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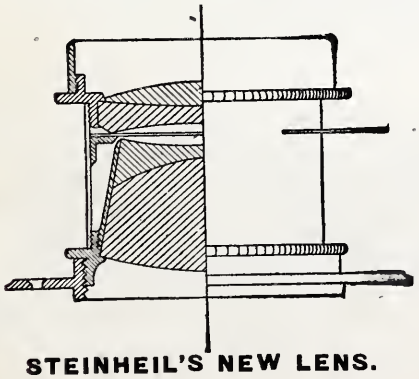
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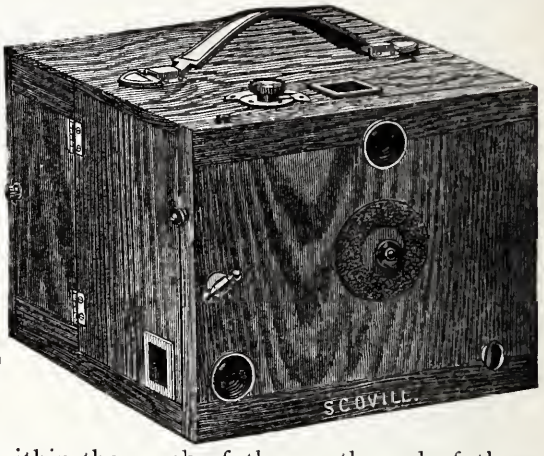
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FOR TRIPOD AND HAND USE.



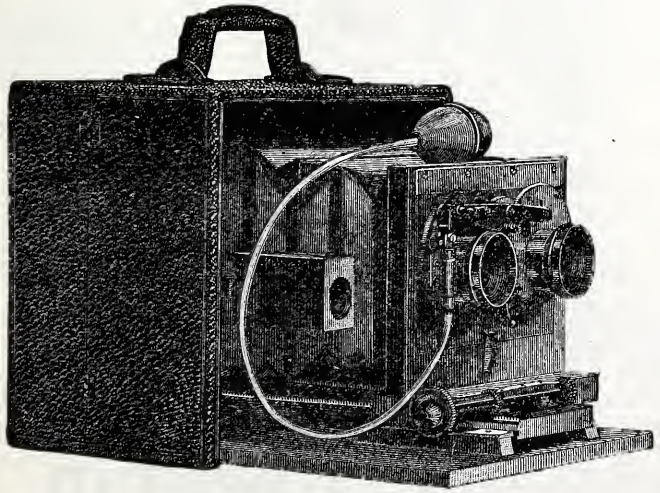
It is commonly known that of all pictures, those which are arranged to give the stereoscopic effect when viewed in a stereoscope, convey the true impression of perspective and solidity. It seems strange, indeed, that of the myriads of instantaneous pictures made, so few are taken with reference to their future use in connection with the stereoscope, *for it is only by that means that the idea of perspective and solidity can be conveyed.* We can only assign as the reason the present almost universal use of hand cameras, and that none of them have, up to this time, been arranged for stereoscopic pictures.

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This camera measures eight inches high, nine inches long and five inches wide; its weight is about five pounds. It has a screw plate underneath, so that it may be used with a tripod. It has a door in the back of the case, and through that opening the image thrown by the lenses may be seen on the ground-glass focusing screen.

The second illustration shows the appearance of the camera when open. The pair of Optimus Lenses is fitted with a triplex stereoscopic shutter with pneumatic release, made by the Prosch Manufacturing Company.



The camera is furnished with a focusing scale and a reversible finder. Either half of the stereo. negatives when cut in two are of a size suitable for making lantern slides from.

This camera may also be used to take a single picture of the size of the ground-glass focusing screen (5x7 inches), either vertical or horizontal. In the former case the reversible finder comes into use. The septum which divides the camera inside is arranged so that it may be easily taken out, the stereo. lenses are mounted on a removable front, and an extra front is furnished on which may be placed any lens of not over seven and a half inches equivalent focus.

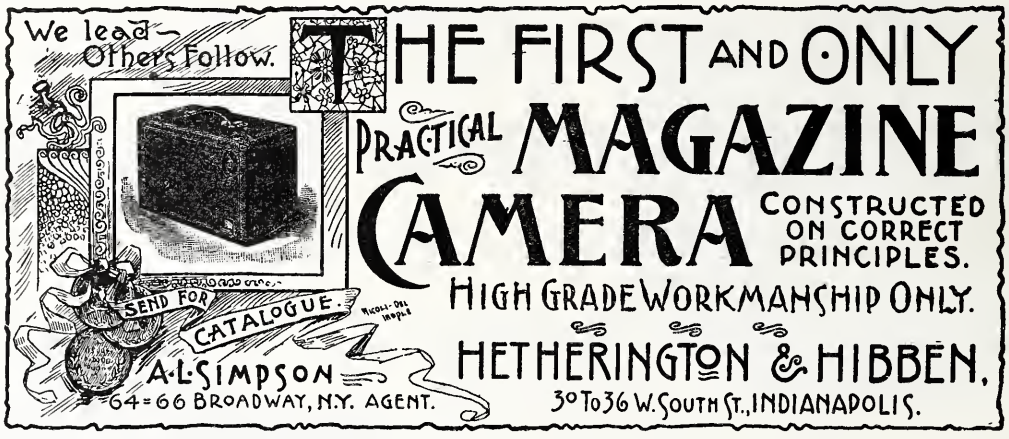
PRICE, with a pair of Optimus Lenses and Prosch Stereoscopic Shutter with Pneumatic Release, ... $75.00

This camera can also be made with vertical sliding and swing front. By means of the former the proportion of sky and foreground may be adjusted; the latter permits the taking of subjects which may be either above or below the level of the camera and still preserve the lines vertical.

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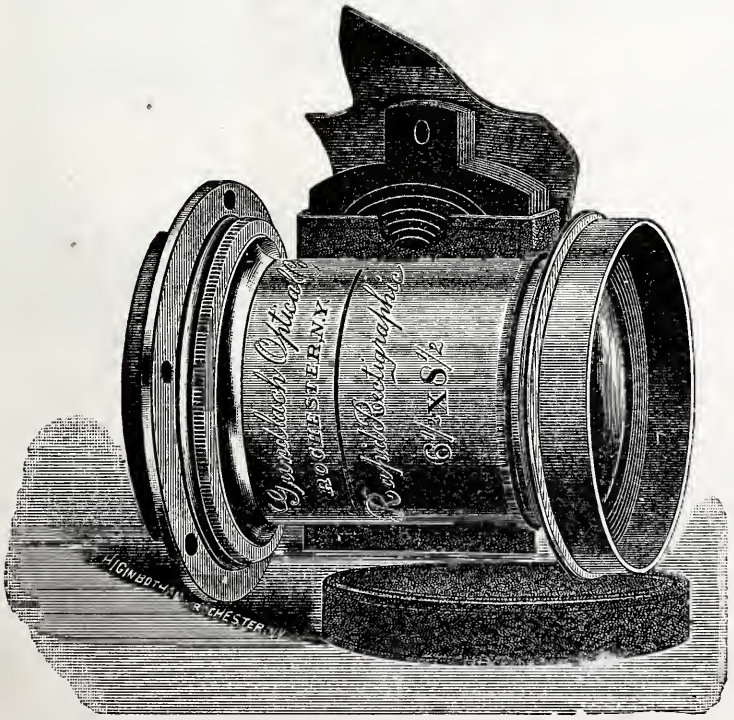
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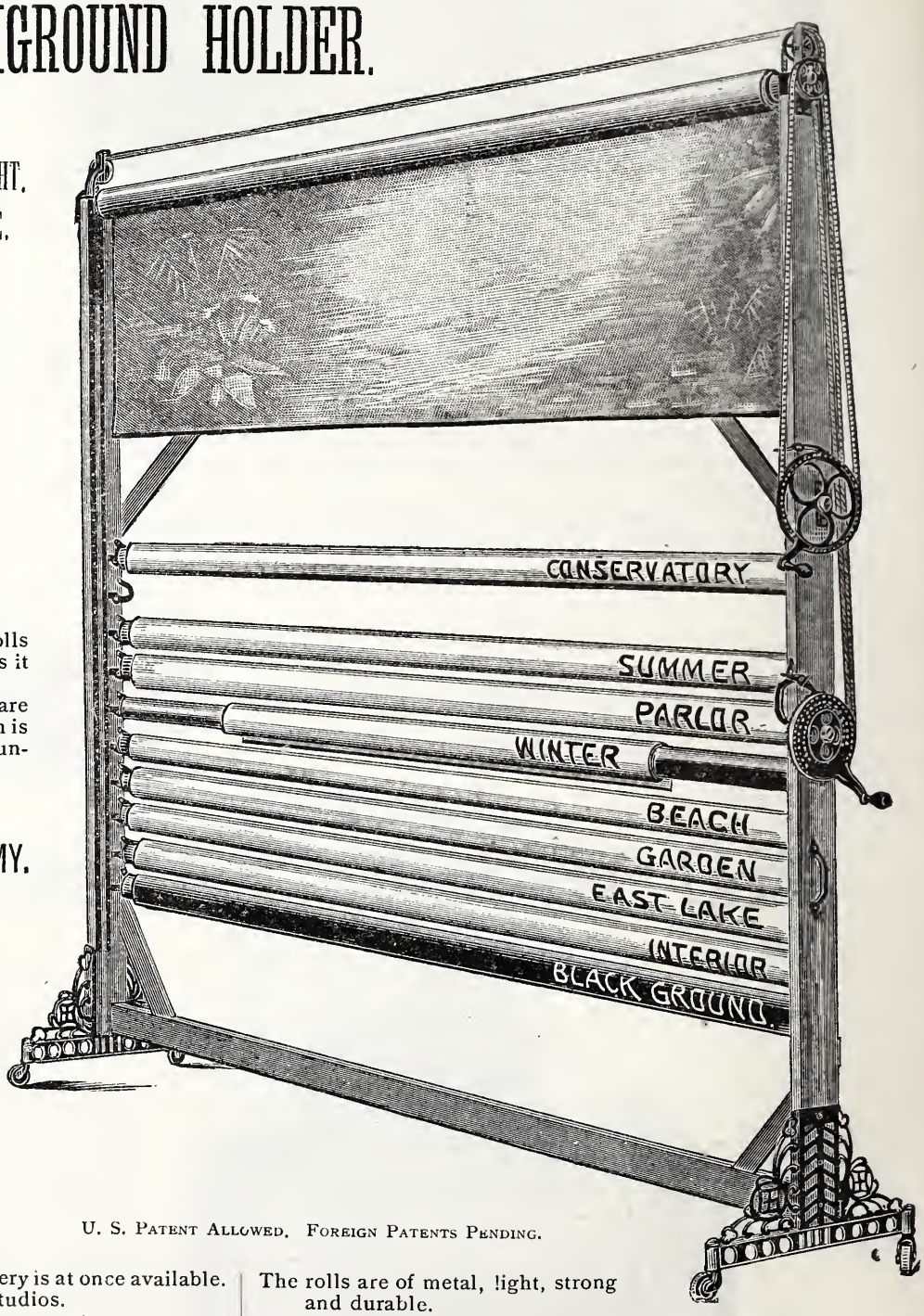
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It saves a sight of trouble to the busy operator.
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THE PHOTOGRAPHIC TIMES.

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THE QUEENS.

WE continue our series of famous photographers, this week, with Mr. Fitz W. Guerin, of St. Louis.

Our frontispiece is a characteristic specimen of Mr. Guerin's work, and the article which follows, telling us of his career, is illustrated with a cut from a recent photograph, and is an excellent likeness of the man.

F. W. GUERIN.

THE subject of our sketch, Fitz W. Guerin, was born on St. Patrick's Day, in the year 1846, in the city of New York.

Like Horace Greeley, he decided to go West, and going to St. Louis, in 1859, he secured a situation in the Merrill Drug Mill, where he began working in the cellar and was promoted from one department to another, until he had gone through the entire building to the tower. Receiving no promotion in salary, he left the drug business to become a messenger boy for the Western Union Telegraph Company.

In 1861, when the roar of battle and the din of cannons was heard, the patriotic fever affected our little messenger, and he decided to serve his country, serving in infantry and artillery for three years under Generals Lyon, Grant, Sherman, and Banks.

We next find our soldier boy in a St. Louis gallery, sawing wood, hauling water, cleaning glass and scrubbing floors. Not being able to coin money at making faces, he decided to try his luck at railroading, receiving a position as superintendent of repairs and construction of telegraph lines. Tiring of this we next meet him as conductor of a freight train, and, after several narrow escapes in railroad accidents, his heart craved for his favorite profession, photography, and he, finally being successful in getting a job in a small Iowa gallery, shortly afterwards opened a gallery of his own in a little country town; but having no custom or capital, he had to put in most of the time working on a farm.

Afterwards another venture in photography was made at Ottumwa, Iowa, under the firm name of Remington, Guerin & Mills, where, after five months' experience, F. W. Guerin sold out to the two remaining partners for enough money to pay his fare to St. Louis. His next appearance is in the gallery of Fitzgibbons' as operator, where he received the princely salary of $7 per week. From there he worked at several other galleries as operator and retoucher, prominent among which



F. W. Guerin

were those of John A. Scholten and G. Cramer, of dry-plate fame.

The next attempt at starting in business in 1876 proved successful, at 906 N. Sixth Street, St. Louis, with a capital of $50. Although he frequently did not know wherewith to buy his next meal, he bravely struggled on, even taking unto himself a wife, when one room served as bedroom, dining-room, kitchen and negative room. Yet from these humble quarters he sends in 1878 an exhibition of pictures to the World's Exposition, Paris, France, and is rewarded for his perseverance by receiving a medal for fine work.

Copyrighted.

Increasing business compelled him to seek larger quarters at 627 Olive Street, where, after remaining about five years and building up a select trade, until even this location proved inadequate to supply the demand for the now rapidly becoming famous pictures, the studio was moved in 1882 to the five-story building at 1137 Washington Avenue, where at present the reception and operating rooms are located, the printing, finishing and retouching rooms having been removed to the beautiful new establishment in the West End built for that purpose and completed in September, 1891. This building has the most complete and convenient facilities of any gallery in the United States, employing about twenty-five people.

The occupancy of this new building was hastened by a fire on the night of September 28, 1891, which destroyed the upper stories at 1137 Washington Avenue, very nearly consuming the entire building. Besides the medal received in 1878 he has been the recipient of many more, being awarded at Cincinnati in 1884 two first prizes, at New Orleans World's Exposition in 1885 a gold medal, at Chicago in 1887 a diamond medal, and at Paris, France, in 1889 a silver medal.

With children's pictures Mr. Guerin has been very successful, having probably the largest collection of copyrighted children's pictures of any photographer in the country, which are sold all over the world and from which quite an income is derived annually. He has attended all the conventions, usually in company with his charming wife, who has always been his right-hand support throughout his entire business career. His name is well represented by four Guerin juniors, ranging in ages from three to eleven years.

In conclusion, although Mr. Guerin is a very powerfully built man, he moves about the operating room with the rapidity and lightness of a shadow, always having a pleasant word and jest for all his sitters, and never tiring of trying to please his numerous customers and friends.

ON REMOVING YELLOW FOG, INTENSIFYING AND REDUCING THE OPACITY OF CLICHES.

ON pages 427 and 469 of THE PHOTOGRAPHIC TIMES for 1891, the reader will find described *in extenso* a rational process for reducing the intensity of negatives and diapositives, which also permits one to intensify and to remove yellow fog. It is substantially as follows :

The cliché is immersed in a diluted solution of ferric chloride slightly acidified with hydrochloric, citric or oxalic acid, or a solution of bromine, which may be prepared by decomposition of three or four parts of potassium bromide by nitric acid in very little excess, and adding water to make 150 volumes or thereabout. The solution must be very slightly acid in order not to disorganize the gelatine or produce blisters or frilling.

In this the silver is converted into chloride or bromide in a certain period either *in toto* or partially, the action commencing from the surface. Hence, the intensity being gradually lightened, the action can be stopped at will by a simple washing when the picture has acquired the proper opacity.

To intensify the image is first converted into chloride and bromide by diffused light; then rinsed and dried in the dark, exposed to sunshine until uniformly blackened, then treated by any weak developer. So intensified the clichés are permanent; they do not fade as those treated by mercury, and do not intensify in the light as when intensified by a deposit of uranium ferrocyanate.

Yellow fogs resisting the action of clearing solution are by our process effectively removed, that is, disappear as a yellow reduction; the plate is immersed in a solution of bromine as said above, and the operation made by direct sunlight. Of course there is a slight reduction of intensity.

It has been lately advised to remove yellow fog by immersing the clichés in a solution of potassium bromide at 50 per cent. of water (?) acidified by a few drops of hydrochloric acid, then to place them in a bath of sodium thiosulphate (hyposulphite) at 20 per cent. In this the yellow fog disappears in a period which may extend to one hour or more.

We have not tried this process, knowing how to avoid the fog and stains in question, but we think that some of the delicate details must be destroyed.

MR. FREDERICK E. IVES, inventor of the successful method for making photographs in the colors of nature, writes, under date of March 5th, to the editor of this magazine, that he has succeeded in constructing a heliochromoscope, in which the same triple positives used for projection in the lantern are focused upon the retina of the eye, as a single picture in the natural colors. "I can therefore now demonstrate the process at a minute's notice," writes Mr. Ives, "sun or no sun."

THE BRADFISCH PERFECTED ARISTOTYPE PAPER.

Messrs. Bradfisch & Pierce have introduced an aristotype paper which promises to win prompt and wide-spread popularity, both among the professional and amateur circles. The specimens which we have seen are certainly all that could be desired. The manufacturers state that they will guarantee every package of paper sent out to be all they claim for it. They have the best of facilities for making the paper in any sizes and in any quantities, all of a uniform degree of excellence, and start in the manufacture of this popular paper under the most auspicious circumstances.

The directions for working the paper are extremely simple. Briefly they are as follows:

Print about two shades darker than desired when finished.

Wash for about half an hour in cold water, until the bath remains clear.

Tone in any good gold bath as used for albumen paper, until the desired tone is obtained, then place in fresh water, and when all prints are toned, place them in the following

Hardening Bath.

Water	1 ounce
Saturated solution of alum	2 ounces
Saturated solution of bi-carb. soda.	1 drachm

Allow prints to remain in this bath for five minutes, using enough solution to cover prints; then wash for fully ten minutes, and fix in plain hypo bath (1 to 20) for fifteen minutes. Now wash for one or two hours in running or still water, changing prints occasionally, and mount same as albumen prints. When thoroughly dry lubricate with castile soap and alcohol, and burnish (it is preferable to use a rotary burnisher), thus obtaining any finish according to the heat applied. Negatives of ordinary strength, as used for albumen paper, give best results.

NEW FORMULAS.

Eiko-cum-Hydro Developer.

A.

Potassium sulphite	150
Eikonogen	22.5
Hydroquinone	7.2
Water	1250

B.

Potassium carbonate	75
Water	250

According to the author of this formula, Mr. Augerer, the mixture of eikonogen and hydroquinone forms the best and most energetic developer. (?)

Eiko-cum-Hydro-Pyro Developer.

A.

Eikonogen	6
Hydroquinone	2
Pyrogallol	1
Sodium sulphide	50
Citric acid	1.5
Water, boiled	480

B.

Potassium carbonate	40
Potassium bromide	0.23

Equal volumes. Quite original this developer! Why not a little para-amidophenol?

Extra Rapid Para-amidophenol Developer.

A.

Para-amidophenol	3
Potassium ferrocyanate	25
Sodium sulphite	30
Water	480

B.

Potassium carbonate	35
Potassium hydrate	4
Water	480

(Deschamps.)

Equal volumes.

A New Restrainer.

Sodium chloride (common salt)	4
Potassium bromide	2
Potassium iodide	1.5
Water	48

It is said that less hardness is produced by this compound than by any other. (Sodium chloride is an accelerator according to Audra and Franck de Villecholes. The plates should be immersed for a minute in a solution at 50 per 100, then developed without washing by ferrous oxalate).

Intensifying with Silver.

Carefully wash the negative, then immerse in

Iron sulphate (ferrous)	100
Citric acid	35
Alum	35
Water	1000

to which before use is added a little of a silver nitrate solution. The intensification is not limited. This process is due to Mr. Edwards.

Bath for Fixing and Intensifying in One Operation.

A.

Sodium hyposulphite (thiosulphate)	1
Water	3

B.

Iron protosulphate	1
Water	3

Mix. Let stand for, say, one hour and the bath is ready for use.

The gelatine cliché, well washed, assumes in this bath a black tone due to the sulphuration, which intensifies the reduction.

This intensifying method is an application of that devised for the same purpose in the collodion process, by Mr. E. Milsom, of Lyons, France, in 1879.

The above is the original formula.

Warm Tones in Platinotypes.

In the platinotype printing process, by adding 5 parts of mercuric chloride to every 480 parts of ferrous oxalate, warm tones are produced.

Black Tones in Diapositives, etc.

The follwing uranium bath tones black diapositives, albumen prints, etc.

Auric chloride	1
Uranic nitrate (U_2O_2)$2NO_3$	1
Borax	20
Water	7680

This bath does not keep even by omitting the borax, for the uranic nitrate becomes by time reduced to uranous nitrate, which precipitates gold as well as silver from their solutions.

Development of White and Black Drawings.

A.

Pyrogallol	6
Potassium metabisulphite	6
Ammonium bromide	6
Distilled water	960

B.

Aqueous ammonia	15
Distilled water	960

For use equal volumes. This formula is due to Messrs. Manson and Swan. Mr. England publishes the following for the same purpose :

A.

Hydroquinone	15
Sodium sulphite	48
Potassium bromide	2
Distilled water	960

B.

Sodium carbonate	20
Potassium carbonate	20
Distilled water	200

Equal volumes. These formulas are also good for developing transparencies.

Toning Bath for Aristotypes (Gelatino-Chloride).

A.

Sodium benzoate	200
Caustic potassa	1
Water	4500

B.

Gold terchloride, pure	1
Distilled water	150

For use mix nine parts of A and one of B. Set aside for about two hours, and when the bath turns reddish it is ready for use.

THE STUDIOS OF NEW YORK.

Number III.

At the corner of Broadway and Ninth Street, opposite the palace, covering a whole block, the prince of merchants built for transacting his immense commerce, is situated the studio of Mr. Fredericks, the veteran photographer. In former times it was near Leonard Street, then the business center of the city.

Fredericks was in partnership with Gurney, and both directed the most grand and artistic photographic gallery there ever was in America, and probably in the Old World. What a cluster of young Parisian artists were there assembled! Constant, who settled in New York and made his mark as a genre painter; Saintin, who now ranks amongst the good artists of Paris; Nélig, a born artist, the most gifted of all, perhaps, now dead, and many others whose name does not presently come under my busy pen. Oil paintings, pastels, water-colors, crayons, all pictures of value, adorned the parlor of that celebrated studio, together with a splendid collection of large-sized daguerreotype portraits of Henry Clay, Daniel Webster, Calhoun, Buchanan, Seward, Seymour, and other distinguished men of America, so valuable, so precious for their perfect resemblance. All has been destroyed by fire.

Mr. Fredericks now sustains alone the old reputation of the firm. The show at the street entrance is fine, the best of the city. The exhibition in the parlor deserves the praise of the connoisseurs. We like the crayon portraits of ladies. They are treated in a most appropriate manner; the lines are not sharp and they are not blurred. It is a peculiar, indescribable realistic *flou*, which imparts to the whole softness and delicacy. On this ground should meet the sharpists and their opponents. Eclectism is as good a method in arts as in philosophy. It does not exclude originality.

This indecisive sharpness, so well adapted to represent youth, grace and beauty, would be, however, out of place to portray men of character, to represent force, energy.

There are two glass rooms in Fredericks' estabtablishment, one en suite with the parlor, the other on the floor above, which is the largest; a group of

fifty persons can easily be posed in it. There is nothing particular in the disposition of these skylights. We think, however, that the top light is a little flat. But that is of not a great consequence, as the lighting can easily be corrected by a head screen.

At Fredericks' they have something like thirty double holders filled ready for exposure, and this is not sufficient in a good clear day. Most of the portraits taken are bust; the negatives are not vignetted as is usual at Kurtz's. The lenses are Scovill's and very good, judging from the results.

Except for photographing children, when a second is about the maximum, the exposure time varies from three to five seconds. Here again we met an operator who does not believe in short exposures and wants a well-impressed film in order to conduct the development to a purpose.

To develop, eikonogen or pyrogallol is employed; eikonogen when the picture is to be printed on aristo paper; pyrogallol, if on plain or albumenized paper. The reason is that aristo collodion or gelatine paper *prints hard*, and that to obtain the details and contrasts without harshness, the negatives should be full of half-tones and rather weak. Hence eikonogen, which develops the whole picture at once, so to say, and gives—with sufficient exposure, of course—a flatter image and slowly intensifies.*

They do not like aristo paper at Fredericks'. They are going to give it up. Then pyro-soda will be exclusively employed as before, "it being the most reliable developer in the whole."

The proofs are toned with the gold acetate bath.

From Fredericks we went to see Rockwood, not at Union Square, but in his new establishment up Broadway, near Fortieth Street. As usual he gave us a hearty welcome, and without much ado at once showed us his spacious establishment, explaining everything with that *joyeux entrain* which is the characteristic of the man.

Here we meet again an old acquaintance, Dan Murphy, a photographer of not a little merit, who can turn out a lot of work in no time. "He is working for me since thirty-three years. This proves at least that he is a very good operator or that I am a *rarissime* good boss." You are both good men, Mr. Rockwood.

The establishment of Rockwood is a model arrangement in an artistic and business point of view; it is perfect.

On the ground floor, the parlor, elegantly furnished, exhibits a great variety of pictures: plain photographs, oil paintings, crayons, pastels, the excellence of which we need not to say, it would be repeating ourselves over and over again. It suffices to say, they are Rockwood's.

En suite and back of the parlor is the studio. The lighting is from the north and exceedingly soft and pleasing, owing to the light being admitted through very finely ground glass plates, polished surface outwards, of course, to reflect in the space most of the objectionable rays from the buildings around.

This mode of lighting artists' studios, so common in Europe, when clear sky cannot be secured, is objected to by the generality of American photographers as *shutting off much light*. This, which may have had a *raison d'être* when the negatives were obtained by the wet collodion process, we do not understand since the advent of the rapid gelatine preparations; moreover, it has many advantages besides avoiding reflections from outside; the light is more diffused by being sifted, as it were, through the ground-glass, and, as a consequence, the model is more harmoniously illuminated, and the contrasts more easily attenuated by the head screen and other contrivances without false light being projected on the shadowed side.*

Besides this skylight there is an upright one, consisting of one single clear glass plate about 6 x 3 feet, where late in the afternoon portraits can be made. "Sculpturesque effects *à la Rembrandt* are there obtained with great ease," says Mr. Rockwood. And exemplifying his assertion, he showed us bold and brilliant effects of lighting, which it would be difficult to produce in ordinary skylights.

The studio is open in the evening until ten o'clock. The exposure time is longer than in day time, but not very much, five to eight seconds, according to size and diaphragm, and children are photographed in much less time.

The contrivance for lighting at night is quite simple: a cone about three feet wide covered with tracing paper, in which are four arc electric lamps, is fixed on the ceiling opposite the skylight, and projects the light at an angle of 45 degrees. The portraits taken by this light are well modeled and compare favorably with those made by the sun's light.

The exposure time is the same as in every other studio we have visited, two to five seconds; and development is carried with pyro soda. "I have tried," stated Mr. Rockwood, "all the fancy de-

*See "The Photographic Image," by P. C. Duchochois. It is a complete treatise on the development in every process.

*See "The Lighting in Photographic Studios," by P. C. Duchochois. For sale by the Scovill & Adams Publishing Company.

velopers, and I do not find in them the good qualities which old pyro possesses." The toning is done with gold soda.

Leaving the studio we stepped into the basement —a very large one, by the by, fully 80 or 85 feet deep by 25. There frames and passepartout are made. There are the finishing rooms, those for preparing and developing collodion wet plates, and working gelatine plates. No smell, every room is quite well ventilated; no dust, all is kept as clean as in a parlor.

Our friend Dan Murphy is there making copies by the electric light, also lantern-slides, which he makes to perfection by the collodion wet process. "Nothing to compare to that old and excellent process for that kind of work. For portraits gelatine does not give better results."

The enlargements are made on bromide paper and developed by ferrous oxalate. They are full of details with deep shadows and white, remarkably clear grounds. The arrangement for making them is simple and practical. On the partition of a large dark-room is adapted a condensing lens about 14 inches in diameter; upon it is projected the parallel rays of an electric light placed at the focus of a parabolic reflector; in the interior of the room the camera fixed opposite the condenser, etc. The electric light serves also for copying, it being fixed on a pivot.

The speciality of Rockwood, which in this country is also a novelty, is photo-ceramics. The specimens we have seen are as fine as those we admired in Paris some years ago. We had the indiscretion of asking by what process they were made. "Du Motay's," was the quick answer.

On taking leave, we inquired whether great trouble was experienced in posing children. "Trouble!" says our friend, "In twenty-six days I photographed 984....!"

(*To be continued.*)

A SLIDE-CARRIER FOR UNMOUNTED SLIDES.

It is always advisable to try newly made lantern slides in the lantern before mounting, so as to be able to judge of what merit they will have when mounted.

In view of this fact I should like to call the attention of the readers of this excellent magazine to a simple arrangement of my own invention, which serves the double purpose of a secure slide camera and (I hardly know what to call it) a mat-holder as well.

This latter part is no doubt a little obtuse, but I shall try to explain it to the best of my ability. First, no one denies that the matting of a slide has a great effect on the finished slides; therefore, anything that serves to gives the effect of a mounted matted slide and at the same time admits of trying several kinds of mats on the same slide, at hardly any outlay of time, will, I think, be of use to my fellow-amateurs.

Take an ordinary slide-carrier and proceed to build it up with cardboard or wood, until you have it within the thickness of a slide (mounted) of the top; then take a slide and place it in the holder; next close up one end with more cardboard or wood, also fit a piece in the other end but not stationary. Now make a number of cardboard cut-outs of various shapes and sizes. While these may be of cardboard, they are best made of brass, as they last longer and besides serve to cut out the mats with which the slides are to be mounted (they may be had of any first-class stock house).

To use, take your unmounted slide face down and place in the holder; now select a mat and slide it on top of this, on the glass side place in your end piece, and you will find that you have your slide securely mounted for all practical purposes, and one which I think is decidedly handy.

David G. Archibald.

THE CHEMISTRY OF PHOTOGRAPHY.

(*Continued from page* 135.)

CHAPTER V.

The Chemistry of Development.—(I.) Daguerreotype Process.

What is development? By "development," in photography, we understand the *making plainly visible* of any image which was previously invisible, or at all events scarcely discernible.

When a sensitive surface, as that of a dry-plate, is exposed to light within the camera, an image, called the latent, invisible, or photographic image, is impressed upon it. This image is not visible upon the surface of the plate. But by applying to the plate certain solutions, called "developers," the image is made visible.

It is plain that a developer must be some substance which acts *differently* upon the parts of the sensitive surface which have been affected by light, as compared with those which the light has *not* affected. By this differential action the *contrast* between the exposed and the unexposed parts is

increased; and the latent image then becomes the visible or developed image.

The First Man who "Developed" a Plate.—The first man who has a real claim to be considered a "photographer" was Joseph Nicéphore Niepce, of Chalons-sur-Saone, in France. He was the first to take a picture in the camera; the first to develop a plate; and the first to secure a permanent photograph. He was about forty-eight years of age when he commenced (in 1813) to work at the problem of securing pictures by the agency of light. By the year 1827 he had certainly achieved considerable success, for in that year he paid a visit to his brother Claude (then residing at Kew, in England), bringing with him several specimens of his work. He did not divulge his method, but some of his "photographs," which he presented to certain of his friends in England, are now in the British Museum, and are very creditable indeed. He labored in vain to perfect his discovery; entered into partnership with Daguerre in 1829; and died, a disappointed man, in 1833, aged sixty-eight.

How Niepce Developed his Plates.—Niepce coated metal plates with bitumen, dissolved in oil of lavender. By an exposure in the camera for several hours, a latent image was impressed on these plates. But the process was too slow for camera work, and most of Niepce's specimens were procured by contact-printing—an engraving (rendered transparent by varnishing) being laid upon the bitumenized plates, and then exposed to sunlight.

The effect of sunlight is to *oxidize* the bitumen; oxygen, from the air, combining with the bitumen to form complex organic compounds whose precise chemical nature it is impossible to determine. Such oxidized bitumen is harder, and is insoluble in liquids, such as oil of lavender and petroleum, which readily dissolve bitumen which has not been exposed to light. It is only necessary, therefore, to soak or wash the exposed plate with some bitumen-solvent, in order to remove the unacted-on bitumen, while the insoluble bitumen remains, forming the "high-lights" of the now visible picture.

A letter from Niepce to Daguerre is in existence, bearing the date 5th December, 1829, in which the phenomena of development are graphically described:—

"The plate (which had been coated with bitumen) may be immediately submitted to the action of light in the focus of the camera. But even after having been thus exposed a length of time sufficient for receiving the impressions of external objects, nothing is apparent to show that these impressions exist. The forms of the future picture remain still invisible. The next operation then is to disengage the shrouded imagery, and this is accomplished by a solvent consisting of one part by volume of essential oil of lavender, and ten of oil of white petroleum. Into this liquid the exposed tablet is plunged, and the operator, observing it by reflected light, begins to perceive the images of the objects to which it had been exposed gradually unfolding their forms. The plate is then lifted out, allowed to drain, and well washed with water."

Many millions of plates have been developed since the days of Niepce; but probably no man has witnessed the "modern miracle" with such joy, wonder, and surprise, as he whose eyes *first* saw the invisible image made visible.

The method of development necessary in heliography, or Niepceotype, is a *physical* method. It depends on a difference in solubility between two substances—oxidized and unoxidized bitumen.

Daguerre's Method of Development.—Once an idea has been communicated, a principle established, or a fact demonstrated, the thing becomes familiar and more discoveries are sure to follow. Daguerre repeated the work of Niepce, and so the development of a latent image became a familiar idea to him; but he failed to attain the necessary *rapidity* which he rightly recognized as indispensable to commercial success in photography, and so he experimented in every direction, trying to secure this indispensable factor.

Daguerre appears from his early correspondence with Niepce, about 1828, to have always had an inclination for the use of *iodine* in his photographic experiments Niepce had used the same substance in conjunction with metal plates, but without success. After the death of Niepce in 1833, Daguerre continued to work at the problem.

The exact date cannot be fixed, but it was probably in or about 1836 that a "happy accident" is said to have rewarded the French scene-painter for all his toil and trouble.

It appears that Daguerre discovered that silver iodide, formed and exposed upon a plate of silver, was sensitive to light. In this case the metallic silver at the back of the silver iodide acts as a sensitizer, absorbing and chemically combining with the iodine liberated by light. It has even been shown by Carey Lea that silver iodide can act *as its own sensitizer*. We may perhaps suppose that a higher iodide of silver exists, in which case the following equation would represent the fate of the iodine liberated by light:

$$\underset{\text{Silver iodide}}{AgI} + \underset{\text{Iodine}}{2I} = \underset{\text{Silver ter-iodide.}}{AgI_3}$$

and *produce*

Be this as it may, Daguerre found that by a *prolonged exposure in the camera* he obtained a faint, printed-out image of objects in bright sunshine, in about two or three hours. This was no more rapid than poor Niepce's work with bitumenized plates, or than the similar results which Fox-Talbot was at the same time (1835–39) obtaining in England upon paper coated with silver chloride. But fortune favored Daguerre. One day he removed from his camera an iodized silver plate which, although it had been exposed in the usual way, showed no visible sign of an image. It was, as we should say, "greatly under-exposed." This plate Daguerre put away in the cupboard in which he kept his chemicals. Going to this cupboard the next day, Daguerre was surprised, and doubtless much pleased, to see that the face of the iodized silver plate was no longer blank, but that it bore a good image of the objects towards which the lens of the camera in which it was exposed had been directed. The plate had, in fact, been *developed* during the night. But how, and by what? A study of the contents of the cupboard revealed an open dish of mercury, upon or close to which the under-exposed plate had been laid.

Further experiments were quickly made; and it was found that mercury vapor possessed the marvelous power of bringing out or developing the latent image on an iodized silver plate which had received only from ten to thirty minutes exposure within the camera. By *warming* the mercury in a small iron pot, over which the exposed silver plate was suspended, iodized side downwards, the speed of development was increased so that instead of requiring "all night" (as in Daguerre's cupboard) the operation was completed in a few minutes.

The development of a daguerreotype belongs to the *physical* class. We can conceive of the exposed plate over the warm mercury as being subjected to a bombardment of millions of molecules of mercury all over its surface. The portions of the plate affected by light are able to combine or amalgamate with this mercury; but from the unaffected parts the mercury molecules bounce back again. The latent image is thus built up or developed by the accretion of mercury molecules. Professor Meldola has well compared the action to the effect of a sand-blast upon a sheet of glass on which a design has been painted in gum. The particles of sand which strike the gummy parts adhere to them, and so a design is "developed" in sand particles. As to the *reason* why the molecules of mercury combine only with the portions of the plate which have been affected by light, we know little or nothing. The action may be chemical—some definite compound being formed between the mercury and the "photo-salt" or reduction product; or (more probably) it may be merely physical, the mercury being able to amalgamate with the sub-iodide of silver, but not with the normal silver iodide.

It is possible to (temporarily) develop a daguerreotype plate by simply breathing upon it. The photo-reduction product attracts, or rather combines with, the moisture, just as it attracts the mercury.

W. Jerome Harrison.

(*To be continued.*)

THE CONFERENCES AT THE "CONSERVATOIRE DES ARTS ET METIERS" ON PHOTOGRAPHY AND ITS SCIENTIFIC AND INDUSTRIAL APPLICATIONS.

[Translated from the "Photo-club de Paris" for THE TIMES.]

ON Sunday, December 20th, M. Janssen, member of the Institute, director of the observatory of Meudon, President of the French Society of Photography, demonstrated at the "Conservatoire des Arts et Métiers" the importance of the application of photography to astronomy, which the lecturer defines "the science of sciences" because all other ones meet it at the end.

One can say that a science possesses its title of nobility only from the day when it contributes to the solution of the problems arising from the study of heaven, and its principles, going beyond the terrestrial bonds, find an application in the infinite.

Physics, chemistry, mechanics really merit the name of science only on the condition to express the laws of the absolute and of the universe.

It is by starting from this idea that the spectrum analysis, which dissects the solar envelope, must be considered as a discovery of the first order.

If, properly speaking, photography is not a science, it is at least,a marvelous instrument, whose concourse every one can make use of to arrive to the knowledge of the universe.

Arago, by a sort of presentiment of genius, saw its importance, and clearly determinated it the year itself he divulged to the Academy the secrets of Niepce and Daguerre.

Unfortunately, no notice was then taken of his advices.

Many asked of the new comer the means of making a living; every one, industrials, artists, savants, did not take interest in its future and to the problems which it lifts up.

It is an American, Dr. Draper, who receives this

precious inheritance, and obtains the first photograph of the moon ; then, the start being given, the discoveries succeed one another under the impulsion of the Rutherfurds, the Fizeaus, the Foucaud, Secchis, Gonds, Cornus, the Henrys, glorious phalanx to which should be added M. Janssen.

The projections of Molteni show to us the lunar planet more lighted on the edges than on the center, from which one concludes to the absence of an atmosphere, its ash-colored light and its immense craters, that of Tycho-Brahe which does not measure less than 100 kilometers of opening.

From the moon, dead earth, we come to the sun, upon which all the interest is concentrated, since it is the great regulator and dispenser of life, and that to its image are made the thousands of millions of stars, too far away and of too small a diameter, as seen from our orb, to be directly observed, but whose constitution can be deducted from that of the sun.

We admire it, with its illumination stronger on the center than on the periphery, which proves the existence of a gaseous atmosphere, with its corona, its spots, its protuberances.

The eclipses, particularly that of May, 1883, to the observation of which Mr. Janssen took a direct part, furnish proof still imperfect, but will in a future period permit to write the history of heaven by means of the elements given by the heaven itself.

We see what important part photography plays in the knowledge of the universe ; nothing could be compared to it, and the most defective photoimage is by its exactitude of the indications preferable to the most perfect design.

The telescopes are powerless before phenomena as changeable as those the sun is the theatre ; their use in this circumstance is often dangerous, always delicate.

Moreover, when the luminous impressions on the eye are rapid they are fugitive, and, one replacing the other, they have but a feeble intensity ; it is there that the photographic retina, which accumulates the actions without losing their trace, reveals its transcendent superiority.

To exaggerate the sensitiveness of this factitious retina, to fix the panels more and more limited of the celestial arc, such is the end to pursue.

What have we not the right of expecting from such an infallible auxiliary, to which the space obeys, which submits everything to its caprice, and has only to will for the sun, the planets, the stars to quit their infinite deepness and with docility come and offer themselves to our study !

In an eloquent peroration which raises the applause of the audience, the illustrious savant points out the necessity of an official photographic education.

Photography is born French and should remain French.

Neither the opinion, nor the press, nor the public powers will be wanting to sustain it and start it in the direction traced by Arago, where it will find new conquests and grand surprises.

The 10th of February, M. Fabre, Professor at the "Faculté des Sciences de Toulouse" made a lecture on photographic chemistry

This abstruse subject had had the honors of a clear and sober exposition, often wanted in lessons, so full of technical details, in which one is always incline of telling much in a short time.

After having defined photographic chemistry "The study of the phenomena which take place when one operates to obtain an image under the influence of light," Mr. Fabre studies the formation of the latent image in the daguerreotype and on glass plates, giving to the physical action of light a capital importance.

Then he speaks of the developers, which he divides in two groups, physic and chemical, according as they act by depositing their own matter or by decomposition of the silver salts, and then speaks of the constitution of the image, formed, according to the lecturer, of three layers, of which one only, the upper layer, undergoes a complete reduction.

The reaction of the simple radiations is afterwards the cause of remarks so much the more interesting as the touch to a subject now at the order of the day.

In fact, certain substances are acted on only by certain regions of the spectrum ; and one conceives, therefore, that one can utilize the substances which possess this property, and obtain films of a special sensitiveness for such and such ray, the color of the object determining the choice of the substance.

It is what we understand by orthochromatism. M. Fabre points out, in finishing his lecture, the researches made by M. Attout Tailfar to attain this end.

In the conference of the following Sunday, Mt. Cornu, member of the Institute, Professor at the Polytechnic School, did not intend to study the structure of the astral bodies and the variety of their aspect, but to research the concourse photography gives to the astronomy of precision.

The progresses observed in this branch of the science have always been correlative to the sensitiveness of the chemical substances in use. At the time of the iodized plates one could only obtain

photographs of the sun; then the collodion has permitted of photographing the moon and the planets; and lastly, the gelatino-bromide has given the means to attack the stars whose study is indispensable to make the map of heaven.

It is true that on certain account photography is inferior to the direct examination. Substituting to the immaterial image of the telescope a real image, and utilizing different radiations to those perceived by the eye, it does not exactly register what we see; but the simultaneity of the observations, the possibility of fixing several objects on the same proof, the persistence of the images, the economy of time, assures it an incontestable and incontested superiority.

It is in 1845 that Fizeau and Foucault obtained for the first time a *veritable* image of the sun in using daguerrean plates prepared with bromo-iodide; then Warren de la Rue continues the researches by means of the heliograph, apparatus less perfect than that of Fizeau, but of smaller dimensions, and which permits, on account to a special arrangement, to obtain very enlarged images.

The lecturer then insists on the eclipses. This phenomenon, as it is known, results from the interposition of the moon between the sun and the earth, and is of great importance at the point of view of the celestial mechanics, since the knowledge of the movements of that planet give the elements to determine the longitude.

The passage of Venus on the sun offers not a less capital interest; it occurs in fact only twice in a century, and measures the distance of the sun to the earth by means of a method exclusively geometric. This observation is exceedingly delicate, and one can say that if there is no bad telescope for the moon, there is not a good one for Venus.

Projections now show to us all the details of the expedition which was sent to the north under the direction of Admiral Mouchez.

The object now to pursue is the photography of the heavens. To the brothers Henry, of our National Observatory, belongs the honor of having caused a decisive progress to this question. The solution of the problem is delicate on account of the distance which separates us from the stars, of the little light they send us, although in reality the intensity of their éclat be considerable, and of the difficulty of following them in their displacement. Moreover, the number is such that no intelligence could assume the responsibility of such formidable labor; therefore Admiral Mouchez proposes the grouping of the astronomers of the whole world and of dividing the heavens into zones, which would be attributed to the various observatories.

Every one will at once understand the importance of this study. It bequeaths to our successors a true image, so much the more precious as a certain number of stars appear and disappear periodically; it becomes the origin of invaluable discoveries by facilitating the comparative examination of clichés made at various periods of the stellar life.

The own deplacement of stars and their distance from the sun are measured, the convergence of their motion rendered evident with the law which displaces one whole solar system and carries it under the fatal power of numbers, towards a determinated point in the infinite.

Such is the vast program which is laid to science, such is the work to which photography lends its marvellous and infallible help, and of which the celestial map will be the sublime coronation.

L. Hetlich

Correspondence.

WEE BABIES.

BABIES short and babies tall,
Babies big and babies small,
Blue-eyed babies, babies fair,
Brown-eyed ones, with lots of hair,
Whether they cry
Or whether they laugh,
Allen can take their photograph
In half a second, and quite as nice
As can be done at any price.
Bring your babes and have a few.
435 Eighth Avenue.

To the Editor of THE PHOTOGRAPHIC TIMES, 423 *Broome Street, New York, U. S., on top floor, knock hard.*

I send you a copy of sign I saw yesterday on Eighth Avenue, which I think good enough to publish, even if it is a free *ad.* of "Allen." The original is nicely lettered on a card about 30 x 40, with samples of the work mounted in the borders and spaces, and stands in a frame at the street door.

If Mr. A. were to make a negative of the whole, and from that have a "process" block made, it would serve very nicely as a business card. Some of you photo-engravers get after him.

"*Cholly.*"

THE LOOKOUT CAMERA CLUB.

To the Editor of THE PHOTOGRAPHIC TIMES.

Dear Sir: At a meeting last night the photographic amateurs of this city organized the Lookout Camera Association: President, S. C. Dodge; Vice-President, I.

C. Macdonald; Secretary and Treasurer, Wm. M. Bowron, 37 Keystone Block, Chattanooga, Tenn., to whom any communications may be addressed.

Respectfully,

Wm. M. Bowron,
Secretary and Treasurer.

CHATTANOOGA, Tenn., March 12, 1892.

Photographic Societies.

SPECIAL ANNOUNCEMENT OF THE SOCIETY OF AMATEUR PHOTOGRAPHERS OF NEW YORK.

A SPECIAL COURSE OF LECTURES.

April 5th.—"Dry Plates." James H. Stebbins, Jr.

May 10th.—"Photo-Mechanical Processes." Prof. Chas. F. Chandler.

EXTRA LECTURES.

March 22d.—"Recent Researches in the Solar Spectrum." Prof. L. C. Laudy.

April 5th.—"Practical Talk and Demonstration of the Carbon Process." Dr. Leo Backeland.

April —"Artic Regions." Prof. Bradford.

April 2d.—Smoking Concert.

April 12.—Annual Meeting.

T. J. Burton,
Secretary.

Notes and News.

Harry Hooper, the photographer, of Franklin Grove, Ill., is about to move to Atchison, Kas.

W. C. Edinger, of Des Moines, has sold his gallery for $2,000.

Messrs. Buchanan, Bromley & Co., of Philadelphia, have dissolved partnership.

Albert L. Rogers, of Baltimore, has sold out his gallery to Harry J. Jeffries.

The New York Camera Club has recently issued a neat little book in cloth binding containing the Constitution and By-laws of the organization, and list of officers and members.

Percy, Lund & Co., publishers of London, have issued a Catalogue of Photographic Literature, including an index to the books and magazines relating to photography and the kindred arts.

ACTINISM.

ON studying the nature of the action of the blue, or rather the violet, ray of the spectrum, it appears to me to be a misnomer to refer to it as chemical. The absorption of heat attends chemical decomposition, and on the other hand the disengagement of heat is the accompaniment of chemical combination. We read in Professor Wurtz's excellent treatise on "The Atomic Theory:" "It is heat which sets the atoms in motion; they have absorbed heat in separating from each other, since the rupture of the molecular equilibrium which marks the end of the state of combination has required the consumption of a certain quantity of heat. The heat thus absorbed has restored to the atoms the energy which they possessed before combination, and which represents affinity. This heat is lost again whenever the atoms, passing into the sphere of action of other atoms, fix the latter in some manner, or are fixed by them so as to form new systems of equilibrium—that is, new molecules—in which henceforth their vibration and motion are preserved. This action is reciprocal." If with this we compare what takes place in the so-called chemical action of the violet ray, we find a great difference. The latter process is usually referred to as one of decomposition and not of combination, and, in fact, photography is based on the property possessed by light of decomposing chemical compounds by its reducing action.

It is true that this decomposition is supposed to be attended with certain chemical changes, as is the case also with the decomposition of amyl and other vapors in Dr. Tyndall's very interesting experiments in cloud making, although there appears to be some doubt as to the nature of the changes. Moreover, in the action of the violet ray on a mixture of chlorine and hydrogen gases the formation of hydrochloric acid would seem to be due to the operation of chemical affinity. Nevertheless, when we consider the analogy between this case and that of the formation of water by the passage of a current of electricity through a mixture of oxygen and hydrogen gases, a question may be raised as to whether the former is due to strictly chemical action. The phenomenon of electrolysis, in which the electric current decomposes a molecular compound, is, moreover, analogous to that of the decomposition of chemical compounds by the actinic action of the violet ray. The latter phenomenon answers to the decomposing action of heat, and the former to the combination of elements which attends chemical action; but they are not the same. This is evident from the fact that, while in the one case the combination precedes the discharge of heat on which decomposition depends, in the other case it follows decomposition.

Nevertheless, in all cases actinic action would seem to be attended with the aggregation of at least one element of the decomposed chemical compound. Thus, when on the exposure of chloride of silver to the action of light the chlorine is expelled, the silver is precipitated. The result depends on the instability of the equilibrium of chemical combination in the presence of certain light-rays, and it is thought that all substances are thus more or less affected by light. It is found that the red rays are chemically inactive, and of the others the absorbed rays are those which bring about the decomposition which is the basis of actinic action. The liquid nitric of amyl allows the transmission of the yellow rays, and Dr. Tyndall states that the blue rays, as complementary to the yellow, are ab-

sorbed, and therefore that they produce the "chemical" effect. As a fact, however, the complementary of yellow is violet, and the greatest actinic action is in the violet ray, and it extends far beyond into the invisible rays. This in itself would seem to prove that actinism is not chemical action, as the intimate relation between this force and heat would lead us to expect the association of chemical action with rays towards the red end of the spectrum. The vibrations of heat are atomic and not molecular, and possibly this fact may have influenced Dr. Tyndall in his opinion that the absorption of the actinic rays occurs in the main within the molecule, and are not the act of the molecule as a whole. There is no reason, however, why the absorption should not be of the whole molecular mass: that is, of the body of molecules that make up the mass, just as the absorption of heat is that of the atoms which make up the molecule.

Here would seem to be the real explanation of the phenomena of actinism, which is a distinct power of light due to its activity as a molar energy, just as heat is an atomic energy. The combination which follows the decomposition effected by actinic action has a similar relation to chemical combination. The latter is atomic, whereas the former is molar, as it affects the mass, and this through its molecules and not through the atoms of which these are composed. From the fact that the electric light contains a large proportion of actinic rays, and that the electric spark in rarefied air is diffused and of a violet color, it might be supposed that actinism is only a phase of electricity. That they are closely related we may judge by what was said above, but there are reasons for believing them to differ from each other as they both differ from heat, although all alike are forms of energy. Actinic absorption, like coloric absorption, is attended with decomposition, but as far as the former is attended with or followed by an aggregation or combination of elements, as with chemical affinity, it is also a force, but molar rather than molecular or atomic.—*Science.*

The Editorial Table.

Anleitung zur Photographie fur Anfanger, by Major Giuseppe Pizzighelli. Fourth edition. Publisher, Wilhelm Knapp, Halle, a/s.

This is a valuable little book printed in the shape of a pocketbook. It contains most important advices for beginners and excellent formulas.

The four editions published since a few years is a sufficient guarantee of its value and of its well-deserved popularity amongst the amateur and professional photographers.

Handbuch der Photographie, vol. ii., by Major Giuseppe Pizzighelli. Second edition. Publisher, Wilhelm Knapp, Halle, a/s.

The handbook of Pizzighelli ranks among the best works written since a few years in the German language. The first volume, which we reviewed in these columns, was remarkable by the excellence of the matters treated. This, the second, which we have before us, surpasses it, perhaps, so far as practical knowledge is concerned. The treatment of photographic chemicals, the photomechanical printing process, the chapter on the exposure time are treated in a masterly manner. The library of our German readers should not be without "Der grosse Pizzighelli," as this book is designated in Germany for its excellence.

Queries and Answers.

226 R. T. G.—(1) Will you please inform me through your TIMES if there is any practical way of intensifying lantern slides? (2) Also the best way of clearing the sky. (3) Have some marine views that show quite a darkening of the sky on one side while the other remains clear. It gives the appearance of a thunder-storm on one side, while clear on the other. (4) Does the para-amidophenol developer formula, as given in THE PHOTOGRAPHIC TIMES, require reduction? if so, how great a proportion of water?

226 *Answer.*—(1) We advise to intensify with nitrate of uranium and ferricyanide of potassium, which tones the slide at the same time to an agreeable, warm brown color. The solution is that used for toning bromide prints, and you will find the process described on page 583, PHOTOGRAPHIC TIMES, Vol. XXI. (2 and 3) Take either of the reducing formulas No. 62 or 64, on page 265 of the "American Annual of Photography for 1892." Soak the plate well in water, then blot off the excess of liquid until the film is surface dry, and with a soft brush apply the diluted solution on the sky, taking care not to touch the picture itself. Wash, blot, and apply the solution in operation as said above, and repeat this over again till the effect is attained. Skies may be cleared quite well by this method, but it requires much care not to spoil the image. (4) For normal exposures dilute in the proportion of one to two or three. When great intensity is desirable, take a less diluted solution. Remember that para-amidophenol can be repeatedly used and good results obtained.

227 P. M.—(1) Will you kindly inform me how to prepare an oxalate potassium developer for Seed dry-plates? (2) I would like to know how to use Liesegang toning bath for aristo paper? (2) Is sulphocyanate the same as sulphocyanide?

OWENTOWN, Ky., Feb. 19, 1892.

227 *Answer.*—See Dr. Eder's ferrous oxalate developer No. 40, page 261, "American Annual of Photography" for 1892. Should you not be familiar with metric weights and measures we refer to page 299, where you will find metric weights converted into American correct enough for practical work. (2) Wash the prints in two or three changes of water, mix a quantity of the bath in the same proportions as prescribed in formula No. 96 of the "Annual," and as much of it as needed to tone the required number of prints. Tone as usual, wash and fix in hypo solution, 1 in 6. (3) Sulphocyanate is the proper name of that salt.

228 A. T. T. asks: "What is the chemical action of acetic acid when used to redden prints in the wash-water before toning?"

228 *Answer.*—We cannot give a definite answer. From our experiments *we think* that the blue slate-color of albumen prints on the removal from the frame results, when the paper is sensitized on the so-called neutral silver bath—neutralized by a carbonate—and fumed, which is not, however, a *sine qua non*, from the imperfect reduction of the organic silver compound, which any acid—acetic, nitric, etc., reddens by reacting on the layer of oxidized compound.

THE PHOTOGRAPHIC TIMES.

AN ILLUSTRATED WEEKLY JOURNAL DEVOTED TO THE ART, SCIENCE AND ADVANCEMENT OF PHOTOGRAPHY.

Issued every Friday.

W. I. LINCOLN ADAMS, Editor.

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THE PHOTOGRAPHIC TIMES PUBLISHING ASSOCIATION,
423 Broome Street, New York.

Commercial Intelligence.

Pure Para-amidophenol, in 1-ounce bottles, is having an excellent sale. The formula which seems to give the greatest satisfaction is as follows:

FORMULA FOR DEVELOPER.

Para-amidophenol (pure).....	100	grains
Sodium sulphite (crystals).....	3	ounces
Potassium carbonate.....	1½	ounces
Water.....	32	ounces

FOR USE.—Take 1 ounce of the above solution and from 2 to 4 ounces of water, according to the leugth of exposure.

The stronger the solution the greater the intensity of the resulting negative; the more diluted the solution the greater softness and more detail.

Exchange.—Your appreciative readers, owners of good orthochromatic negatives, are kindly requested to mail a print to the undersigned, who will be pleased to reciprocate such a favor with a equally fine print of my Swiss views or prize negatives.

HERM. BUCHER, JR.

COLLEGE POINT, New York.

"I took the Knack to an amateur here and asked him to give it a trial as a personal favor. He was very much prejudiced against it; but agreed to try it, and reported to me that it was a fine camera and much better than his own of another make. He tested it carefully with his own camera, treating the plates from the two precisely alike, and reported much the best negatives from the Knack." Thus writes A. N. FRANCH, of Pittsfield, Mass.

Not "too Scientific."—"I hope you will continue your directions to beginners in THE PHOTOGRAPHIC TIMES, which my cousin and I take," writes A. H. Brown, of Newark, N. J. "We find it much more helpful than ———, which is too scientific for amateurs."

"Your Series of Studios in New York is a very good idea," writes an old friend of THE PHOTOGRAPHIC TIMES.

AN UNPRECEDENTED SALE.

ON February 15th, the first edition of 16,000 copies of "The American Annual of Photography and Photographic Times Almanac" for 1892, being nearly exhausted, the publishers issued a circular inquiring concerning the number of books unsold, if any, and also concerning the demand which still existed for the book, with a view of determining the advisability of issuing a second edition. In response to this circular about fifty answers were received, from which we quote the following:

FELIX REIFSCHNEIDER, JR., New York: "We have not got one copy of the fifty copies we had. They sold very well, twenty-five the very first day I had them in."

THOS. H. MCCOLLIN & Co., Philadelphia: "'The Times Annual' for 1892 is a great success. We have had four lots and have only a half dozen copies on hand. There seems to be a steady demand for it."

W. C. RUSSELL: "Have just sold out, . . . and will say I have never yet been stuck by having any of the American Annuals left on hand."

F. HENDRICKS & Co., Syracuse: "We have on hand five copies over to-day of 'The Times Almanac.'"

SWEET, WALLACH & Co., Chicago: "We have disposed thus far of over 250 copies. Think we will want more later."

OSCAR FOSS, San Francisco: "Of the 175 copies received from you not one now remains. I have ordered a few more copies, which will, I believe, supply the demand here. If I had ordered 250 copies instead of 175 I should have had no trouble in disposing of them this year."

B. Y. MORRIS, Oakland, Cal.: "I am entirely out of 'Annuals,' and will include in my next order about six paper and two bound."

B. C. NORRELL, Atlanta, Ga.: "My stock is exhausted. I may be able to dispose of more copies."

H. A. HYATT, St. Louis, Mo.: "May want about twenty-five more to carry me through the year."

MULLETT BROS., Kansas City: "May want about twelve copies more."

CHARLES LAWRENCE, WICHITA, Kas.: "We are entirely out, and shall need a few more copies."

ZIMMERMAN BROS., St. Paul, Minn.: "Have sold twice as many as we expected."

J. C. SOMMERVILLE, St. Louis, Mo.: "We have disposed of 100 copies, and are not certain that we shall require any more."

DOUGLASS & SHUEY Co., Chicago, Ill.: "Paper, all gone."

ROBERT CLARK & Co., Cincinnati, Ohio: "We have none left in stock of the 'American Annual of Photography and Photographic Times Almanac' for 1892."

KIMBALL & MATHEWS, Columbus, Ohio: "We are about out of the 'Annuals.'"

M. F. KING, Portland, Me.: "I have none of the 'Annuals' left. Could sell a few more, most likely, if I had them."

WILSON-HOOD CHEYNEY Co., Philadelphia: "We have three copies on hand, and shall order in half dozen lots, as needed."

W. S. BELL, Pittsburg, Pa.: "We have no 'Times Annuals' in stock."

BARKER & STARBIRD, Boston, Mass.: "We have no over stock of the 'Annuals,' and although we received three seperate orders from you, we may be obliged to give you a fourth, in the near future"

MCCURDY & DURHAM, Reading, Pa.: "We have sold all but one copy, and shall probably need more shortly."

PAUL ROESSLER & Co., New Haven, Conn.: "We have not now any of the 'American Annuals of Photography and Photographic Times Almanacs' for 1892, on hand."

BUCHANAN, BROMLEY & Co., Philadelphia, Pa.: "We have on hand 11 copies of the 'Annual.' These will go very easily. If all our goods were as sure sale as these, we would be happy indeed."

J. N. MCDONALD, Albany, N. Y.: "I have no copies of 'The Times Annual' for 1892, in paper. I have ordered a dozen copies more."

Since receiving these replies from the various dealers additional orders have been received from most of them, so that at this writing less than 300 copies of the original edition of 16,000 copies remain unsold. And the orders continue to come in! Comment is unnecessary.

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FELT BACKGROUNDS, $1.50 per foot; a 6 ft. x 6 ft. ground only $3, by mail $3.35.
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LANTERN-SLIDES AND HOW TO MAKE THEM, by A. R. DRESSER.—A new book, very complete and thoroughly practical. Only 25 cents. Sent postpaid on receipt of price by THE SCOVILL & ADAMS CO.

THE FINEST Platinotype Solar Enlargements and contact prints, in black and sepia, are made by
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39 South 10th St., Philadelphia.
Send for price lists.

THE UNDERSIGNED has a few 6x5 Dallmeyer Rapid Rectilinear Lenses which he will sell for 20 per cent from list prices. These lenses are a late importation and are all warranted. Address "TOURIST,"
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WANTED.—Choice stereoscopic negatives from all parts of the world. Address F. F. BRAILLARD, JR.,
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A NEW GUNDLACH LENS, covering a 5 x 8 plate, sharp to the edges, for sale cheap. Regular price $24. Will send C.O.D., subject to examination, for $18.
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R. H. MORAN,
396 Broome Street, New York.

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A BARGAIN.—A No. 6 Gray's Periscope Lens in first-class condition. List price, $22.00. Will sell for $15.00. Spot cash. Address LENS BARGAIN, care THE PHOTOGRAPHIC TIMES.

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THE DEVELOPING AGENT OF THE FUTURE.

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FORMULA FOR DEVELOPER.

Para-amidophenol (pure)	100 grains
Sodium sulphite (crystals)	3 ounces
Potassium carbonate	1½ ounces
Water	32 ounces

FOR USE.—Take 1 ounce of the above solution and from 2 to 4 ounces of water, according to the length of exposure.

The stronger the solution the greater the intensity of the resulting negative; the more diluted the solution the greater softness and more detail.

PURE PARA-AMIDOPHENOL HYDROCHLORATE,
IN ONE-HALF OUNCE BOTTLES,
$1 per bottle.
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(These advertisements are inserted free of cost to photographers out of employment, in order to help them find situations.)

SITUATIONS OFFERED.

Wanted, a retoucher of considerable experience. Prerequisite: Send specimens of work and state salary expected. S. W. Blyth, 10 Court Square, Montgomery, Ala.

SITUATIONS WANTED.

An operator of extensive experience in studio and field would be pleased to hear of an engagement; three years in West London studio, and three seasons traveling, taking landscapes and cathedral architecture (developed own plates) and obtained highest possible reference for same; still engaged, but desirous of making a change. Address Rupert Stearn, 72 Bridge Street, Cambridge, England.

As a retoucher and operator in a first-class studio; no other need apply; prefer retouching, because of being a fine and quick retoucher; reference and samples of work sent; state salary expected to pay in first letter. Will stand trial for two weeks if desired. Address "Retoucher," 417 Adams Ave, Scranton, Pa.

Reception lady, well acquainted with the business in all details, desires situation in first-class house. Best of references. Address "Florence," 174 Division Avenue, Brooklyn, N. Y.

By a first-class retoucher, large and small work; where there is a chance to assist in operating and do dark-room work preferred. Address Photographer, 232 Chestnut St., Chicago, Ill.

Strictly first-class retoucher on large and small work desires position. Address Miss A. Scholl, 29 Cedar St., Boston, Mass.

By first-class printer and toner; printing in backgrounds and other fancy printing a specialty. Reference from best city house. Eugene Engel, 152 Dean St., Brooklyn, N.Y.

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School of Photography.

The local class of 1891-'92 opened Monday, October 5th. Term closes the second week of May, 1892.

Class hours from 9 to 12 every Monday and Saturday.

The skylight room and laboratory used by these classes are on the seventh floor of No. 423 Broome Street, New York. (Take elevator.)

Cost of Course of Ten Lessons, including entrance fee, text book, and materials used in demonstration, $7.50.

Special Single Lessons, per hour, each, $1.

Cost of Ten Lessons in Portraiture, $10.

After completing the regular course, students are admitted to examination, and if passed, are awarded a Chautauqua diploma.

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Shown in Photographs with Subjects, in our new Sample Book.

Also the best and most complete line of accessories made.

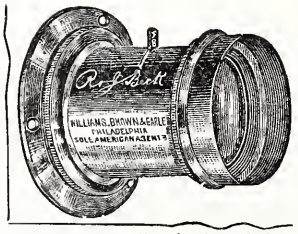
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Mr. JNO. C. HEMMENT, Photographer to *Frank Leslie's*, states: "It is the only lens which will do my work."

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Sole American Agents for the Beck Lens.

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Send **30** cents for a sample dozen.
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Uniform, Reliable, Splendid Keeping Qualities,

COMBINED WITH A CORRECT RENDERING OF COLOR VALUES,

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All contemplating a summer tour should place their orders with dealers early, to avoid the season's rush.

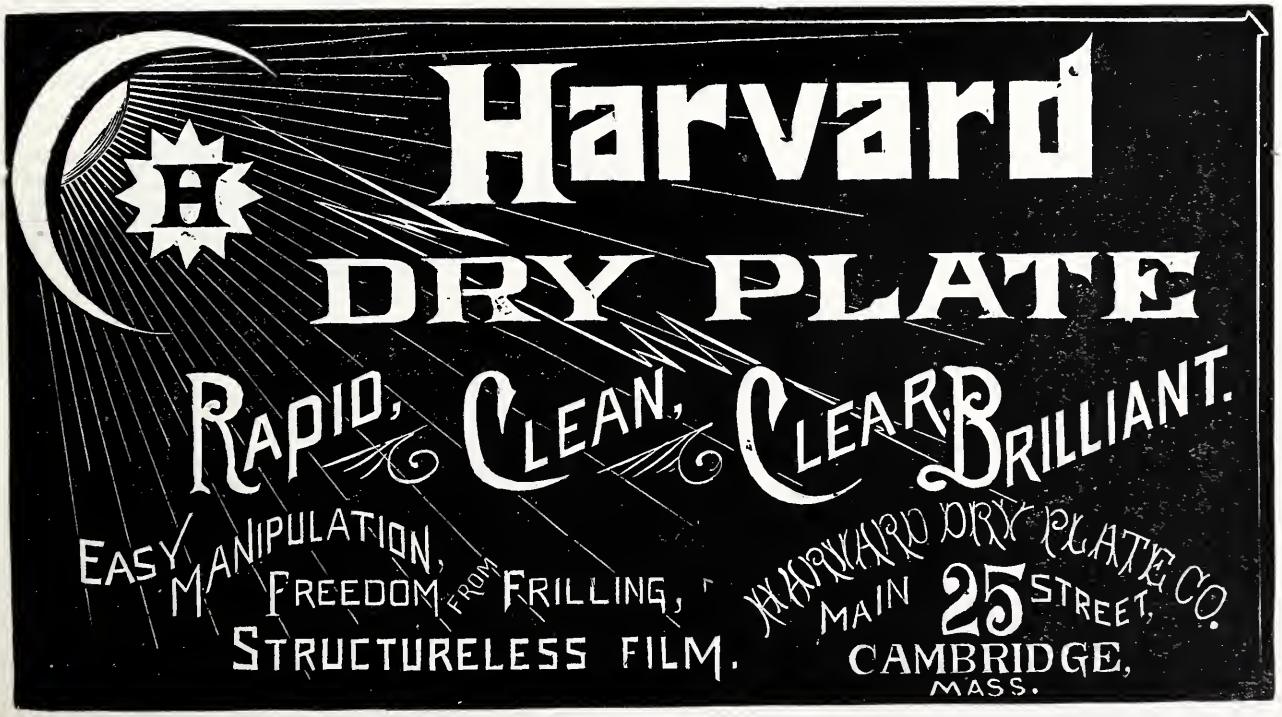
Carbutt's Dry Plates and Flexible Films are to be obtained from all dealers in photo materials. Send to factory for reduced Price List and list of brands.

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PROMPT ATTENTION GIVEN ALL ORDERS.

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The Scovill & Adams' Plain Felt Background, recently introduced, is a great boon to all Photographers, both Professional and Amateur.

It is made of strong, thick and even stock, and is of an agreeable neutral drab color. It is especially suitable for vignetting. The texture of the cloth absorbs instead of reflecting light, and thus produces soft effects, and agreeable depth in print. The liability of defacement by water stains is obviated.

The prices of these grounds are as follows:

4 x 6 feet	$2.50
5 x 6 "	2.75
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These sizes may be sent by mail on receipt of 35c. extra.

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After many years of scientific research a preparation for the salting of plain photographic paper has been discovered, by which method the finest printing results are obtainable. The advantages are apparent to all.

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NOT THE CAMERA,

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Written expressly to help the beginner in perplexity.

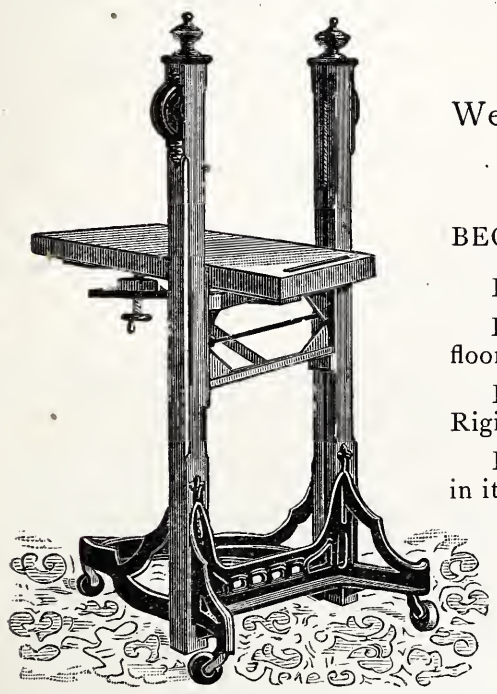
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New England Agents for American Optical Co.'s Apparatus. Best in the world. Send for Price List. : : : :

WHY NOT GET THE BEST?

We claim that **The Semi-Centennial Camera Stand**

BECAUSE— **IS THE BEST.**

It is simple in construction and will not get out of order.

It will enable you to get your Camera within 13 inches of the floor, or as high as you wish from the floor.

It is fitted with turning casters, with rubber wheels. Strong, Rigid, Easy in Operation, and Ornamental in Appearance.

It is the invention of a practical photographer and is perfected in its details. WARRANTED PERFECT.

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MORRISON WIDE-ANGLE VIEW LENSES.



These lenses are absolutely rectilinear; they embrace an angle of 100 degrees, and are the most rapid *wide-angle* lenses made.

No. of Lens.	Diameter	Size of Plate.	Equivalent Focus.	Price.	
0..1	inch...	3¼x4¼ inch...	2½ inch...	each, $20.00	
2..1	" ...	4 x 5 " ...	3¼ " ...	" 25.00	
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4..1	" ...	5 x 8 " ...	5½ " ...	" 25.00	fit into 1 flange.
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7..1½	" ...	11x14 " ...	10½ " ...	" 40.00	These 2 sizes will
8..1½	" ...	14x17 " ...	14 " ...	" 50.00	fit into 1 flange.
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☞ Nos. 1 to 6 are all made in matched pairs for stereoscopic work. The shorter-focused lenses are especially adapted for street and other views in confined situations. For general purposes, a pair of No. 5 lenses will be found most useful.

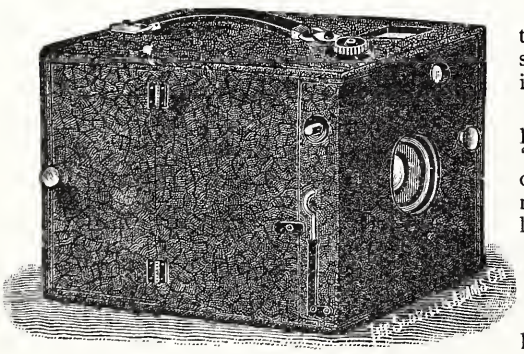
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THE TRIAD CAMERAS.



When a discovery in photography is announced, it is claimed that the new article will displace everything then in use. These claims are seldom justified. There is generally found a place for the new article, if it has any value, and for the old as well.

For commercial purposes, for instance, such as the reproduction of photographs for illustration, it has been demonstrated that collodion "wet" plates are better than dry plates. For the use of the amateur, on the other hand, dry plates are much better than wet plates. Though many new supports have been tried, the sale of glass dry plates is larger now than ever before. Where only a few pictures are to be made on one day's outing it is likely that the experienced photographer will always use dry plates or cut films.

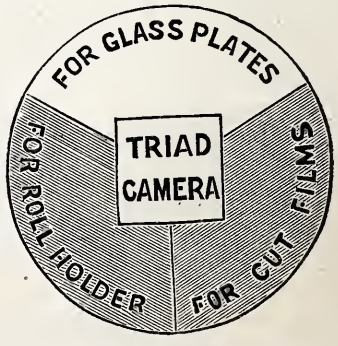
If he is going away for a summer vacation, or for a trip abroad, and expecting to make a large number of pictures, he will procure a roll-holder loaded with continuous films. This will save him the bother of developing while he is away from home, and of changing plates; but he cannot well know what results he has secured until he has exposed the entire roll and has had it developed.

For those who want to use celluloid instead of glass plates, and are not willing to trust to good luck in the exposure of the complete roll of film, we offer with the "TRIAD" camera a *double* film holder which is very light. If the amateur carries six of these holders (loaded with twelve films) he is well supplied for one day; that is, if he is prudent and aims to get only really good pictures. At night, either in a photographic studio or in his own hotel room, the exposed films may be put away into safe receptacles, and another lot of unexposed films substituted for them.

The TRIAD Camera is fitted with the latest improved Roll-Holder for continuous films, two double holders for glass plates, or two double film holders, if the latter are preferred.

This Camera is fitted with an Instantaneous Rapid Group Lens with easily interchangeable diaphragms—the most satisfactory detective camera lens ever made. It has a finder so constructed that the image is the same as that on the ground glass, though of course it it is proportionately diminished in size. Usually the finder in a Detective Camera shows simply the image on the plate, but not its relative size and proportions. The Instantaneous Shutter in this camera is provided with a speed adjuster which works from the outside, and the focusing device and scale are conveniently near the finder. This is very important when one is trying to photograph rapidly moving objects.

For timed exposures use a tripod (easily adjusted to the camera by the plate underneath), open the door at the back, so that the image on the ground glass can be easily seen, set the shutter with the opening opposite the lens, and bring into use the felt cap which fits the opening in front of the camera. By complying with these simple requirements you have a complete camera for timed exposures.



TRADE MARK.

	Price complete.	Price without Roll-Holder.
4 x 5 Triad Camera, with Roll-Holder, two Double Dry Plate-Holders, or two Cut Film Holders..	$35 00	$25 00
Extra 4 x 5 Triad Double Dry-Plate Holders....		1 25

Holders for Cut Films, same prices as above.

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PERMANENT, RAPID, SIMPLE, CHEAP.

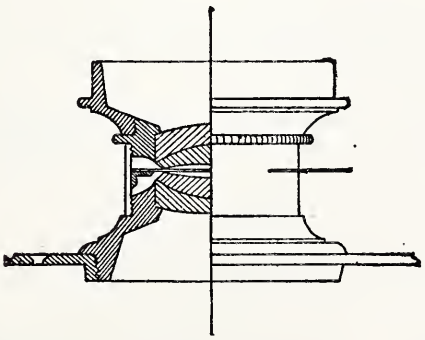
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SUPPLIES AND APPARATUS OF EVERY DESCRIPTION.
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WIDE-ANGLE COPYING APLANAT.



SERIES VI.

Specially designed for copying line work, paintings, engravings, etc. Without a rival for microscopic sharpness evenly divided over the whole field.

Steinheil Prisms, Series VII—For use in connection with the above lenses for obtaining reversed negatives without stripping the film.

The above lenses and prisms are being extensively used in the largest photo-mechanical establishments in preference to the most expensive lenses of other types.

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"The Developer of the Future."

S. P. C.
Para-Amidophenol Developer

IN ONE SOLUTION.

An eight (8) ounce bottle containing developer sufficient for developing 100 5 x 8 negatives.

PRICE, 50 CENTS.

For sale by all dealers in Photographic Materials
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CHEMISCHE FABRIK AUF ACTIEN
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E. SCHERING, BERLIN. TRADE-MARK. REGISTERED.

PYROGALLIC ACID
RESUBLIMED
From E. SCHERING,
MANUFACTURING CHEMIST, BERLIN.

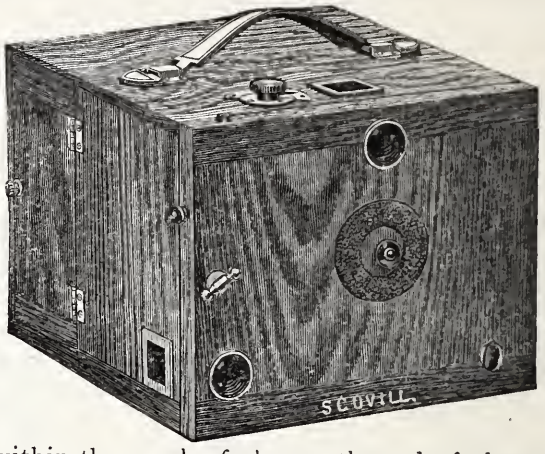
E. SCHERING, BERLIN. TRADE-MARK. REGISTERED.

SEE THAT YOU GET THE "GENUINE SCHERING'S."

THE SCOVILL & ADAMS CO.,
423 BROOME STREET, NEW YORK.

IMPROVED KNACK KNACK

DETECTIVE CAMERAS



To MEET the demand for a cheap Detective Camera within the reach of the youth, and of those who want to make but a moderate investment in photographic appliances, we have introduced the KNACK CAMERA, which is certainly lighter and more compact than any other cheap detective camera in the market, and what is still more important, has a much more expensive and more perfect lens.

This Double Combination Instantaneous Lens, with Interchangeable Stops, when bought separately costs as much as the whole camera.

The whole front of this camera is hinged, which is a great convenience. The camera has a Recessed Finder, an Instantaneous and Time Shutter with Speed Regulator, Cap for timed exposures, and one Double Dry Plate Holder.

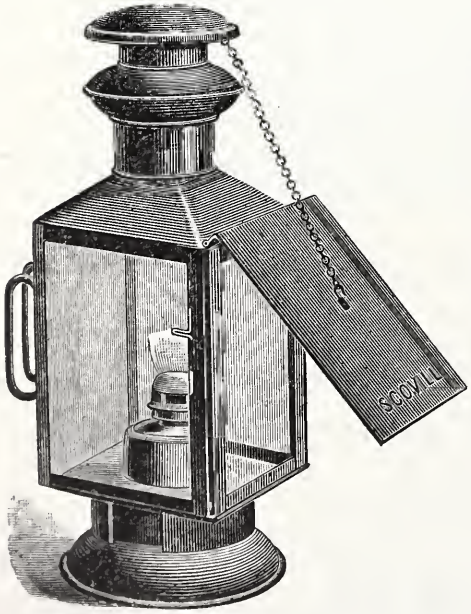
	PRICE.
No. 1. 4x5 Antique Oak, Knack Camera, -	**$15.00**
No. 2, " Leather Covered, " "	**17.50**

MANUFACTURED BY THE SCOVILL & ADAMS CO.

FOR SALE BY PHOTOGRAPHIC MERCHANTS.

THE SCOVILL PEERLESS DARK-ROOM LANTERN.

(IMPROVED.)



"This is without question the best Lantern for the Photographer's use yet introduced."

Such is the reports of experts who have had them in use for months.

Why they were agreed in their conclusions:

BECAUSE the ventilation is perfect, and dangerofoverheating overcome.

BECAUSE it is constructed so that white light does not escape.

BECAUSE it gives ample light for the dark-room.

BECAUSE the abundant light does not fog, but does show any spot or blemish in the plate.

BECAUSE so much of the light may be thrown into the developing dish and be shaded from the eyes.

BECAUSE it may be used either with coal oil or candle.

BECAUSE the flame may be so quickly controlled by unlatching the door or uncatching the bottom of the Lantern.

PRICE, $2.50.

The Boston Mat

(Copyrighted 1890),

Has been designed for the purpose of simplifying the task of mounting slides so that when done they shall be WELL done; and to help the Lantern Operator to project them to the very best advantage.

There are several points pretty generally conceded, viz.:

1.—All upright lines in the view and straight sides of the mat should be perpendicular; and horizontal lines of view and mat level at the instant they become visible to an audience. The rocking motion on the screen, when an after adjustment is necessary, does not add to the effect.

2.—Harmony in size of view shown—this is obtained, whatever shape of opening, by making its longest way between two of the outside lines of the diagram.

3.—Absolute Register. Mercantile Slide Plates are labeled 3¼x4 inches. As a matter of fact they are seldom of exact size, and the variation often exceeds ⅛ of an inch larger or smaller, either way. By first trimming on the dotted line which is to be on top when the slide is held upright, and then cutting the opening equally on each side of the central marks, the horizontal center line will always be thrown on the same place. To bring the perpendicular center always in the same place:—First trim the left-hand END of the mat by the dotted lines; that is exactly two inches from the center; cut the sides of the opening equidistant from the center; then by placing a "stop" on the lantern or carrier, all slides so matted will "register."

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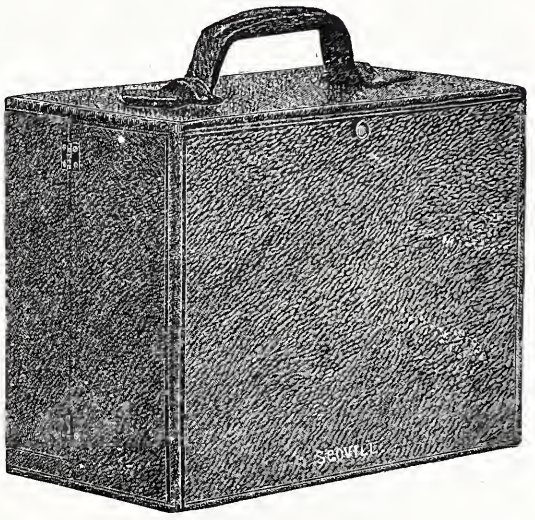
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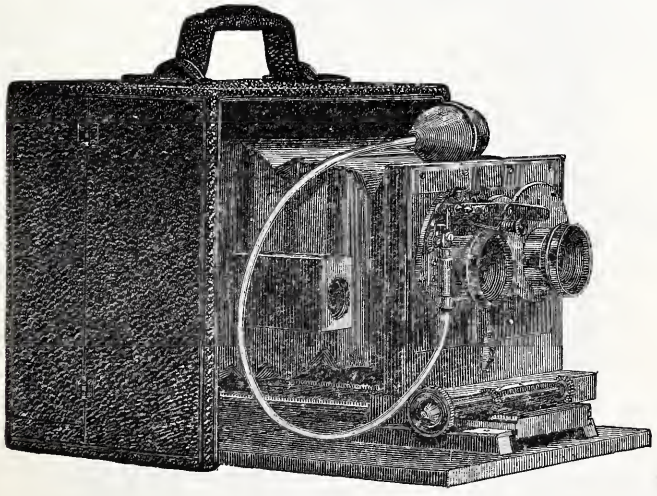
It is commonly known that of all pictures, those which are arranged to give the stereoscopic effect when viewed in a stereoscope, convey the true impression of perspective and solidity. It seems strange, indeed, that of the myriads of instantaneous pictures made, so few are taken with reference to their future use in connection with the stereoscope, *for it is only by that means that the idea of perspective and solidity can be conveyed.* We can only assign as the reason the present almost universal use of hand cameras, and that none of them have, up to this time, been arranged for stereoscopic pictures.

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The first illustration shows one of these cameras closed, and you will observe there is no external opening for finder, lens or anything to indicate that the leather-covered case contains the appliances which go to make up an instantaneous camera.

This camera measures eight inches high, nine inches long and five inches wide ; its weight is about five pounds. It has a screw plate underneath, so that it may be used with a tripod. It has a door in the back of the case, and through that opening the image thrown by the lenses may be seen on the ground-glass focusing screen.

The second illustration shows the appearance of the camera when open. The pair of Optimus Lenses is fitted with a triplex stereoscopic shutter with pneumatic release, made by the Prosch Manufacturing Company.



The camera is furnished with a focusing scale and a reversible finder. Either half of the stereo. negatives when cut in two are of a size suitable for making lantern slides from.

This camera may also be used to take a single picture of the size of the ground-glass focusing screen (5x7 inches), either vertical or horizontal. In the former case the reversible finder comes into use. The septum which divides the camera inside is arranged so that it may be easily taken out, the stereo. lenses are mounted on a removable front, and an extra front is furnished on which may be placed any lens of not over seven and a half inches equivalent focus.

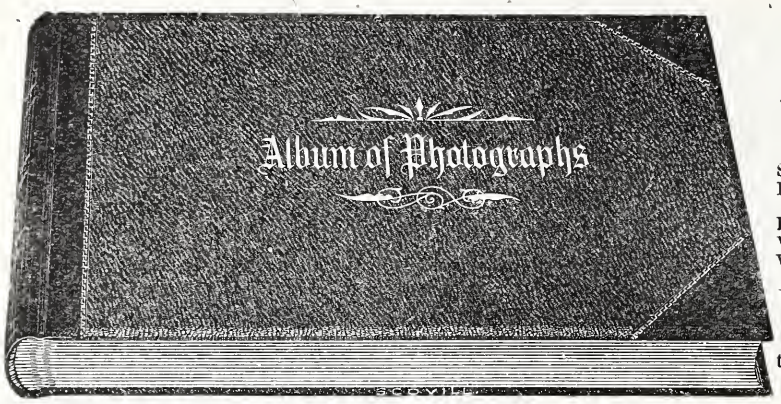
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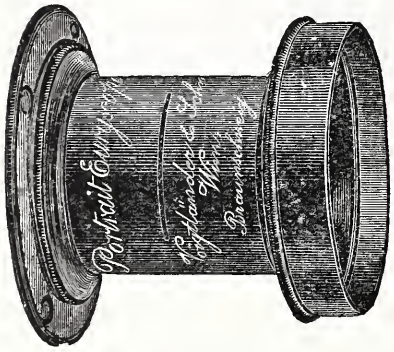
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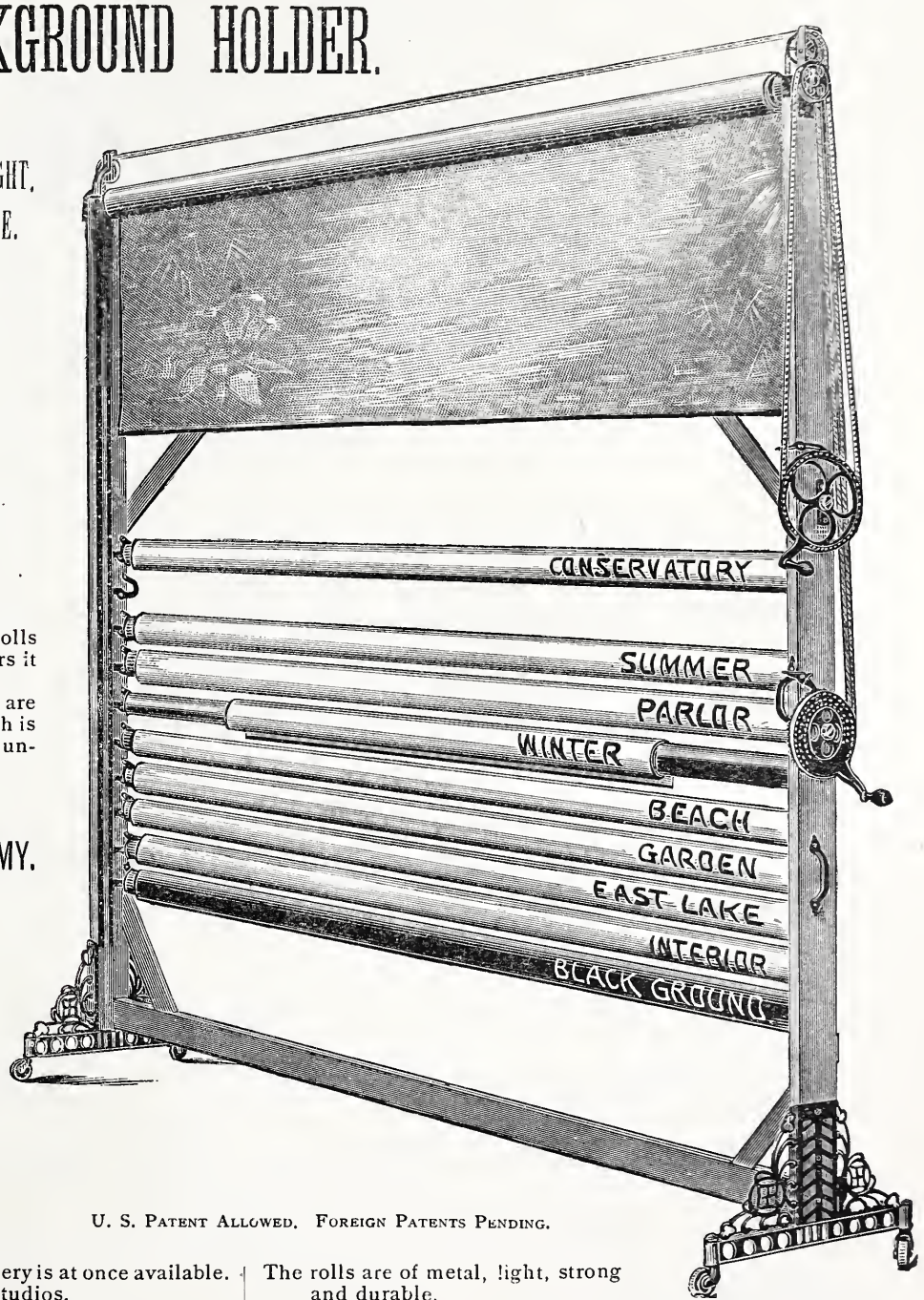
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A Portrait

THE PHOTOGRAPHIC TIMES.

VOL. XXII. APRIL 1, 1892. No. 550.

A PORTRAIT.

WE present our readers this week with the first of a series of pictures which were exhibited at the Vienna International Exhibition by American photographers and there won well-deserved diplomas. It will be remembered that a very small proportion of the pictures submitted for exhibition were admitted to the exhibition, so that those which were hung and received diplomas were thereby accorded no little distinction. One of the pictures which received the most attention among those exhibited by American photographers, is the figure composition by Miss Mary E. Martin, of New York City, a member of the New York Camera Club, which we present to our readers this week. She calls it "Away in the Future," and the pose of the young lady certainly suggests and justifies the title. The picture was made in an ordinary room, by a side light, with a Wale lens; the exposure was eight seconds, the day being a cloudy one, and the plate exposed at about four o'clock in the afternoon. In later issues we shall have other pictures to show which won diplomas at this International Exhibition of Photographs.

AMERICAN PHOTOGRAPHS AT THE VIENNA INTERNATIONAL EXHIBITION.

WE begin with Miss Mary E. Martin's graceful figure picture this week a series of artistic photographs by American amateurs, which were awarded honorary diplomas at the late International Exhibition in Vienna.

Our readers will remember that this exhibition was one of the best ever made under the auspices of a photographic society. Her royal highness Maria Theresa, arch-duchess of Austria, was the patroness of the exhibition, being herself an amateur photographer, and took a personal interest in the affair. The jury of eleven eminent artists were extremely conservative in their acceptance of photographs. The chief principle by which the jury was guided was the condition that artistic conception should predominate in a picture. The technical perfection of a photograph was not to be taken as its chief merit, but only as a secondary consideration. For this reason a considerable number of photographs which would have met with the fullest appreciation at another exhibition could not be accepted.

American photographers especially seemed to be unfortunate. A very small proportion of the photographs sent by American amateurs were accepted, but all those which were accepted were awarded diplomas. Members of the New York Camera Club sent 24 exhibits, of which 7 were accepted; and many of those which were accepted we have secured the negatives of, for illustrating our magazine.

We congratulate our readers on securing these superior examples of American amateur photography.

PHOTOGRAPHY AND THE FORGERS.

MOST of our readers are aware of the part played by photography in the detection of forged documents, and in its employment generally in the service of the police. Culprits who have taken flight have their portraits multiplied and sent from end to end of the country, and the forger sees his clever handiwork, and alterations of names and figures, completely shown up in the photograph taken from them on enlarged scale, every original mark, to the unaided eye apparently erased, being reproduced, and the differences in the inks employed in the alterations photographing plainly, one darker or lighter than the other. This is, comparatively speaking, an old story, though the perfection to which this mode of discovery has been brought in

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Paris is very great, one M. Gobert in particular having rendered great service to the State in the detection of forgeries.

Less frequently have coins been photographed with this intent; yet even in their case the result has been satisfactory, the large photograph distinctly showing small points of difference in the impression of the die, and even the different colors of the metal, slight though they be, in the genuine or the false being brought out.

Quite recently the aid of the photographer has been called in to display how little real resemblance there is between forged and genuine hallmarks upon jewelry. The French government brought an action against a manufacturer suspected of having used false stamps for marking wedding-rings. As is well known, the stamping of all such articles is under the control of government, none but standard metal being marked. To engrave or impress rings they are placed upon a special anvil, not smooth but engraved at intervals with marvelously fine designs representing various insects; hence, when the outer mark is punched in the inside of the ring receives also the impression of the design on the anvil, termed the countermark. In the case in question the various pieces of jewelry seized in the workshops of the manufacturer were examined by an official of the mint, who pronounced that they were up to the standard as regards purity of metal, but that the marks and countermarks they bore were forgeries; and thus, to escape payment of the paltry fee required, the man brought himself in the meshes of the law as a forger. When the case was brought before the assizes the mint official determined to have these various genuine and forged marks photographed, so as to show conclusively to those unaccustomed to the use of the microscope—which would be absolutely necessary to see the details of the design—how imperfect a copy the forgery was of the official stamp.

The work was entrusted to M. Albert Londe, and he has published a detailed account of his manner of proceeding. The ring was mounted upon the stage of a microscope, exactly centered, and placed in a plane rigorously perpendicular to the axis of the microscope, so as to avoid all possibility of distortion. It was then illuminated by a pencil of rays from the oxy-hydrogen light, impinging upon the spot at as acute an angle as possible with the axis. A low power objective and a strong eyepiece were employed; a small camera was adapted to the body the microscope and exposures of from five to ten minutes given To obtain the countermarks the part of the ring where they were situated was cut out and photographed with similar precautions. The results obtained were most remarkable and conclusive. The exquisitely delicate workmanship of the original genuine die may be judged of when we say that, although only two millimetres in diameter, that is to say, the whole design included in the space of the one twenty-fifth of an inch, the enlarged photograph gives a head as large as a postage stamp with details of great delicacy. The counterfeit, on the contrary, bears only a slight, superficial resemblance to the object depicted—a classic head of a horse—and without any details whatever. It is satisfactory to note that armed with such proof, and although counsel did all he could to have the photographed evidence set aside on account of the "unreliability of photographic proof," the defendant was brought in "guilty." A singular eye-proof of the correctness of the photographs was to be found in the fact that, by accident, M. Loude had given to him for photographing an ornament that had previously passed through his hands for the same purpose. When the new photograph was examined it turned out to be identical in every respect with the one already taken, and similar was the resemblance to one taken by another process by M. Riche, the mint official. It is thus evident that the usefulness of photography in the law courts is now spread over a larger area of subjects, and in all probability will continue to expand.

Mr. Dana sent us an invitation for the opening days of the studio he has established in Bond street, corner Fulton, Brooklyn, for which he will please receive the thanks of the Times.

The exhibition consisted of aquarelles, pastels, miniatures, ivoryette photo-portraits. It was excellent. Shortly we will describe it in our review of the photographic galleries of New York, together with the mode of working adopted by Mr. Dana and his operators, and the arrangement of the studio.

The opening was attended by numerous connoisseurs and a choice public. Sandford's orchestra played good music in the afternoons and evenings, which was an additional attraction for the lovers of Euterpe.

We congratulate Mr. Dana for the excellence of the exhibition and his enterprising manner of conducting business. It is useless to wish him a great success—it is certain.

THE STUDIOS OF NEW YORK.

IV.

Mr. Alman, the proprietor of the photographic studio at the corner of Fifth Avenue and Twenty-second Street, holds a first rank amongst the photographers in this country. His works are second to none, and he is the only one who makes permanent portraits.

"I always endeavor to persuade my customers to have their portrait made by my process, which yields unalterable photo-images instead of those always fading silver ones. But the taste of the public has been in general so perverted since the beginning of photography by those sepia, brown, purple and other inartistic colors, and by the not the least inartistic *satin-finish* or glossy appearance of photographs, that only amongst the lovers of the fine arts can I find persons preferring them. Here are some, what do you think of them?"

The proofs Mr. Alman showed to us, mostly large groups, are quite remarkable. One of them, a gentle lady leaning forwards behind a Louis XV. canopy, to gaze at her child sleeping on the same, is so well lighted, the attitude of the mother and child so gracious and natural, and the arrangement of the lines are so artistic by the observation of the rules, that we consider it as a photographic master work; it will certainly one of these days serve as a model for a genre painting. We asked for a copy of it, but Mr. Alman rightly refused, saying that he could do it only by permission of the lady, now in Europe.

These unalterable photographs are made by a process Mr. Alman bought in France. It is similar to the platinotype, but gives an entirely different tone. Instead of the bluish or slate black, the color is a peculiar and pleasing black and no detail is lost.

The specimens of pastels and miniatures exhibited in the parlor are of a good color, soft without flatness. They are, of course, free hand drawings, which is a guarantee of permanence and a *sine qua non* when the picture is to be colored. Even oil paintings should not be done on silver prints, the sulphuration to which the latter are prone acting on some of the colors employed.

The studio is *en suite* to the parlor. It is lighted by the classic north two-sided skylight. To avoid reflection from the brick building near by, in sunny days, moving semi-transparent screens on wooden frames are placed, when necessary, on the upright side of the skylight, and the light shut off partly by opaque blue curtains as the circumstance requires. Head and side screens and reflector are employed to modify the lighting.* The screens opaque and semi-opaque moving on grooves we found to be an improvement over other means to manage the light.

The operator, Mr. James B. Feeley, develops with pyro-soda, and uses two solutions of the same, one containing the normal dose of sodium carbonate and a small quantity of pyrogallol; the other similarly compounded, but with a large dose of the developer. In the first solution the impressed plate is immersed to develop the whole picture without the negative gaining much in density, and when the details are well out, the plate is transferred in the second solution where in a short time the proper contrasts and opacity are obtained. The whole operation is done in from five to six minutes.

This manner of developing with two solutions originated with Mr. Audra. Good results are, however, obtained by gradually adding pyrogallol.

Mr. Alman exhibited at the French international exhibition of 1889, and received a silver medal for the perfection of his pictures. That is but justice. He speaks of selling his establishment, and that he possesses at Newport in a cottage he built himself. His health is impared by thirty years constant working.

The readers have often admired the photographs of Mr. Falk which adorn the collection of The Photographic Times. And if they would stop at his studio and there expend half an hour in studying the variety of his manner of composing a picture they will have a still more complete idea of the value of that artist. Moreover, it will not be lost time for our young amateurs. Mr. Falk is a gentleman of good company, and when late in the afternoon his presence is not required in the glass room he will show you everything and explain everything. He is not a close photographer like many of the second rate of his confreres.

Mr. Falk is going to move opposite the Madison Theatre, so it is useless to describe his present establishment. We will, however, say a word about the skylight; it is wholly a top one, and consequently not very good; but, as our friend Sarony, he knows how to manage the lighting as well as is possible by means of the head screen and other contrivances.

The negatives are all developed with pyrogallol and sodium carbonate and, of course, sodium sulphite to prevent yellow fog. *The solution is used fresh every time*, which accounts for the delicacy of the details in the lights and shadows so remarkable in every one of his portraits. He has tried all the

* See "The Lighting in Photographic Studios."

other developers, hydroquinone, eikonogen, paraamidophenol, etc., but he did not with them obtain as good and sure results.

The prints on albumen paper are toned with a solution of pure gold terchloride and soda.

When Mr. Falk will have moved, we shall, with his permission, describe in these columns his new studio.

(*To be continued.*)

THE CHEMISTRY OF PHOTOGRAPHY.

(*Continued from page* 160.)

CHAPTER VI.—*Continued.*

Development of Wet Collodion Plates with Ferrous Sulphate.—Ferrous sulphate (formerly called protosulphate of iron) was introduced as a developer by Robert Hunt in 1844, for calotype pictures. It was also found to answer extremely well for collodion work, and was generally known as the "iron developer." It was usually mixed in the proportion of 20 grains of ferrous sulphate, and 20 minims of acetic acid, with one ounce of water. The wet collodion plate had a solution of silver nitrate clinging to its surface.

When such a developer was poured upon the exposed plate, the following chemical reaction first took place:

$$6AgNO_3 + 6FeSO_4 = 3Ag_2 + 2Fe_2(SO_4)_3 + Fe_2(NO_3)_6$$

Silver Nitrate *and* Ferrous Sulphate *produce* Silver *and* Ferric Sulphate + *and* Ferric Nitrate.

The nascent metallic silver is attracted, as rapidly as it is produced (the acetic acid prevents it being produced *too* rapidly), by the sub-iodide of silver which constitutes the latent image. This attraction is of a *physical* nature; and so, although the silver is liberated by a chemical reaction, yet the actual process of development belongs to the physical class of phenomena.

Chemical and Physical Restrainers.—The addition of an acid to the developers we have described slows their action considerably. Inorganic acids, as nitric or sulphuric, act too powerfully; and of the organic acids, acetic acid seems to accomplish its task with the greatest regularity. It is probable that the acid forms a molecular combination with the silver salt which has *not* been acted upon by light; and this compound does *not* attract silver, which is thus deposited upon the latent image only.

But if we *thicken* the developer, or by using some colloid substance, such as gelatine, we restrain the movement of the silver molecules, and again we give time for the silver subsalt (which constitutes the latent image) to exercise its superior power of attraction. Thus by adding glycerine (or a strong solution of gelatine) to the developer the acetic acid may be dispensed with. The latter is a *chemical*, the two former are *physical* restrainers. A developer on this principle was recommended by M. Carey Lea in 1875,* under the title of the "ferro-gelatine," "collo," or "glycocoll" developer.

Physical Development Acts Externally.—All the methods of development which we have so far described may be called *physical* methods. Molecules, either of mercury (in the daguerreotype process) or of silver (calotype, collodion, etc., processes), are brought into contact with a sensitive surface upon which a latent image has been produced by the action of light. The metallic molecules attach themselves to, or deposit themselves upon, the latent image in proportion to the intensity of that image.† The action is of the nature of crystalline growth; and reminds one strongly of the methods of electro-deposition by which gilding or plating is performed, The supply of silver comes from the silver nitrate with which the plate is bathed, and not from the silver iodide *in* the film. With an ordinary wet collodion plate this can be proved by washing the exposed plate in distilled water before applying the ordinary developing solution; it will then be found impossible to develop an image of any density; but by pouring off the developer and adding to it a little silver nitrate solution, a satisfactory image will at once grow up when the developer is once more poured upon the plate. Or the latent image can be developed in *mercury* if the exposed and washed plate be treated with a solution of pyrogallic acid and mercurous nitrate (Carey Lea).

The ridges formed by the deposit of silver can actually be *seen* upon a developed wet collodion plate; and they visibly obstruct the flow of the developer when it is repeatedly poured over the surface of the plate. Moreover, the developed image can be destroyed by bathing the plate in dilute nitric acid, which attacks and dissolves the metallic silver at the surface.

Thus physical development is a process which acts from the *outside*, piling up an image which is raised *above* the surface of the film.

W. Jerome Harrison.

(*To be continued.*)

* See *British Journal of Photography* for 13th of August, 1875.

† The varying intensity of the latent image being in turn due to the varying intensity of the light by which it was produced.

THE CONFERENCES AT THE "CONSERVATOIRE DES ARTS ET METIERS" ON PHOTOGRAPHY AND ITS SCIENTIFIC AND INDUSTRIAL APPLICATIONS.

CHRONOPHOTOGRAPHY is the branch of our art which serves to study the physiology of motions.

Everybody knows the photographs of Muybridge representing the different phases or decomposed motions of men, horses, and a great variety of animals while walking, running, etc. Well! these cinematic analyses have been applied to every kind of motions, those of the wing of a fly have been decomposed into twelve phases by Dr. Marcy, who by means of the photograph of a human musculature in tension can recognize whether the subject or model had the intention of moving forwards or backwards.

The study of vibrations is also facile. As an example Mr. Demeny, the lecturer at this conference, relates the following:

"An engineer wanted to know the amplitude of the vibrations of a metallic bridge without resorting to the expensive installations usually employed. He spoke of it to the director of Dr. Marcy's laboratory, Mr. Demeny, who at once answered: Suspend in the axis of the bridge by means of an india rubber string a body relatively heavy, let pass your train, and in consequence of the inertness of the suspended mass you will have a basis which will serve as a starting point to measure on the photochronograph taken at the moment of the action, the searched oscillation."

The chonophotographic apparatus employed by Dr. Marcy are the following:

1. *To operate on a fixed plate.*—An apparatus analogous to the ordinary photographic camera is placed in a box whose front is cut with rectangular narrow openings. Before this revolves a disc into which an aperture is cut whose rotation is regulated and rendered uniform. As the object displaces itself between the passage of the disc aperture from one opening to another, one obtains a series of images indicating the successive attitudes and positions of the object in motion. The interval between the images is regulated to $\frac{1}{10}$ of one second and the posing time (*éclairements*) at $\frac{1}{500}$.

This method suffices when one wants to know the mechanical characters in the analyses of the motion—but it is not satisfactory—but not to reproduce the attitudes and impressions of each phase. Besides, it requires a special arrangement, black back-ground, a large space, etc.

2. *To operate on a mobile pellicle* permits of obtaining all the desiderata of the physiologist and of the artist: A pellicle on a roller slide can, by displacement, necessarily present various spaces of its surface to the focus of the lens. The lightness of the pellicle admits to stop it whatever be the speed, the stored mechanical effort not being sufficient to shake the apparatus at every stop. With this apparatus Dr. Marcy obtains as many as sixty images per second, each one being formed in a period varying at will from one one thousandth to one twenty-five-thousandth of a second *

With it Mr. Demeny has decomposed sentences pronounced while speaking; if the successive images are placed in a zootrope, a deaf and dumb person can in looking at the apparatus translate the pronounced sentence.

C. G.

THE importance of chronophotography to measure the time and space which convey the notion of movement, to demonstrate that the laws of mechanics are applicable to animals, to analyze every movement of bodies, even those of microscopic beings, is obvious to the physiologist, to the physicist, and the naturalist. But at an artistic point of view, what is the importance of knowing the exact attitude of a man and of animals at certain stages of the space when they are in motion? Oftener the attitudes are far from being effective, and seem exaggerated, not true; for the eye, not capable of decomposing the movement into its various stages, sees only the results, and it is this which for us is really natural, and which the artist should, therefore, represent.

Many artists have for this reason set aside the use of chronophotographs as models of movement, while the realists *á outrance* persist in representing the most strange attitudes as seen by the photographic eye, attitudes which sometimes do not suggest either the action of walking or of running.

Is it to say that we shall return to the conventional attitudes for so many years admitted by painters and sculptors? Certainly not. But we must represent motion as we see it; and did the artists of antiquity, the Greeks, especially, who show in their sculptures an exact expression of the movement, when representing men or women, dancing, wrestling or running, the figures being, as they are in reality, out of plumb in the latter action.

The chronophotograph can, therefore, render real services by selecting the attitudes which seem

* Dr. Marcy has lately devised an apparatus permitting to photograph either on fixed or mobile films. See "Revue générale des science pures et appliqués, Paris, Georges Carré.

the most natural, the more gracious, and by assembling several of them. Suppose, for instance, a race between wrestlers; it is evident that the decomposed movements, that is, the various attitudes of man when running at full speed, will when seen together, strongly impress you with the idea of this locomotion. So with a charge of cavalry, etc.

The study of phonographs is also of great utility for the education of the eye to discern what is true, what is apparently natural, what is beautiful. It leads to the study of nature itself, to observe the movement as it is produced, not in a state of repose as seen in a model posing in the studio, whose attitude represents an action which is incapable of conveying the idea of motion on account of the effort made by the model to not move, while the same action taken, by the aid of photography, at the very moment it is spontaneous, and the muscles in action, which appears real.

P. C. D.

DEVELOPMENT OF TRANSPARENCIES.

In making transparencies we have to judge what time is necessary for correct exposure, by the intensity of the negative. While we can, in the majority of cases, hit upon the right time, still in the uncertain light of the dark-room, and if we are making diapositives from both glass and film negatives, we are apt to make mistakes. Therefore a developer for this work should be one which will allow great latitude in exposure. Necessarily such a developer must permit long continued development without any trace of fog. All forms of pyro developers are barred by most workers, I think, for this reason. A developer to be successful must be easy to understand and handle, and perfectly under the control of the operator. With it, we must be able to get all the detail that is possible from a given negative with any degree of density we may desire. It also adds to the value of a developer if several plates may be developed, one after the other, in one batch of developer without any falling off of its working qualities. The iron developer, hydrochinon, eikonogen and hydro, combined with eiko, have one or more of these features. But the developer that combines all these points in the greatest degree is para-amidophenol. I use rodinal, as it comes ready prepared, and I am sure of pure chemicals. Also because it is ready for use at a moment's notice, and is cheap, as only one or two drachms of stock solution are needed for an evening's work. I have no doubt, however, that any good formula of "para" will work equally well. For use I dilute the developer with thirty parts of water.

I expose a Carbutt ground-glass transparency plate at a distance of a foot from the source of light from fifteen to twenty seconds for a film, and from twenty-five to thirty-five seconds for a glass plate. I use a candle for the light, as it is obtained without difficulty, is always of a uniform power, and is easy to ignite and extinguish.

After exposure I soak the plate in water for a few minutes, and then place in the tray containing the developer, rocking the tray to insure even development and the complete immersion of the plate in the developer. From time to time I examine the plate by transmitted light, until the desired density is obtained; then wash the plate thoroughly and fix for ten minutes in the following bath:

Hypo	1 part
Water	4 parts

I then put the plate in a tray of clean water over night. In the morning I wash in six changes of water, leaving the plate in each for ten minutes. Put the plate to dry where there is as little dust as possible.

When dry I fit to the transparency frame, putting a piece of glass free from scratches before the plate. I do not find it necessary to varnish, as the glass protects the plate from all harm.

The resulting transparency has good blacks and clear whites with perfect half-tones.

The developer is quite rapid, and may even be used with forty parts of water with good results.

Howard Park Dawson.

URANIUM TONING OF BROMIDE PRINTS.

[A Communication to the North London Photographic Society.]

Since I first published the results of my experiments for obtaining warm tones on bromide papers a good deal of attention has been given to the subject, both at home and abroad. I should like, if I could, to give you what I might call the whole subject of bromide toning up to date; but this would be a large order, as there are now so many methods suggested. In my first communication on this subject to *The British Journal of Photography*, I expressed a hope that what I had written might lead others more experienced than myself in photographic chemistry to take up the subject and perfect the process—to complete the ship, of which I had laid down the keel, or to build another. It is gratifying to me to find that the matter has been pursued by several able workers, that many sug-

gestions have been made for the production of these warm tones, that some others are promised us in the near future, and that, generally, the question of toned bromides has "caught on," as *The British Journal of Photography* put it the other day.

Various Methods of Toning.

Some of the methods that have been suggested had formed the subject of experiment with me, and had been discarded before I hit upon the uranium toning method. Others—some being for the production of the tone by development direct—I had not tried. One of these, published in one of the German papers, and copied into the *Year-book*, seems to rely on the same principle as the method of development I have suggested *preparatory* to toning, the difference being that the developer is still more dilute than what I recommended. But there is another difference which takes the process quite away from what I had done. The tone is obtained by a *second* development. The first being much of the ordinary character, a weak eikonogen developer, giving a yellowish brown tone, the finished image is reconverted into bromide of silver. This is then redeveloped in daylight in very weak eikonogen, something like one-thirtieth the strength of the original developer. The reappearing image presents itself first as a peachy pink, and proceeds through different stages of warm to dark brown.

The action, of course, is very slow; I think you might set it to work in the morning, go to business, and find it not overdone when you return in the evening. This is roughly the principle which is followed, but you will find full particulars in the *Year-book*.

Another method which is promised, but which has not been publicly shown, comes from America. I saw some prints by this process some months ago, not knowing then that they were not produced by uranium toning. It is now announced, however, that the uranium, or whatever be the color-producing agent, will be contained in paper, or rather in the emulsion. This forms the subject of a patent, and no doubt it will prove a valuable one. The prints I saw were very fine in color. Yet another method is promised us by my friend, Mr. Haddon. He is said to employ a salt of copper, but I have no information on the subject beyond what was stated in the brief notice in the *British Journal of Photography*.

The various methods that have been suggested seem to me to be hampered mostly with two drawbacks. First, as a rule it is difficult to estimate beforehand what tone it is possible to get, or to obtain the same tone at two different times from the same negative. The second is that all these methods are more or less tedious, and this would particularly apply where re-development was resorted to. The perfect simplicity of the acid uranium method of toning, the variety of tones obtainable by it, and the power of getting the same time after time, has always appeared to me its special charm. You may be going over your collection of bromide prints, and one may strike you as being too cold for the class of subject. In a few minutes, if your laboratory contain the necessary stuff, you can judge of its appearance in sepia or warmer brown. If it please you better as it was, pop it into running water, and in a couple of hours you will have it as it was.

Working of the Ordinary Uranium Toning Process.

As regards the working of the process, for the benefit of those who may not have heard or seen it described, I will run rapidly through it, but I really do not think that there will be much to add to what has been already published. The first thing, of course, is to get a good negative. One made with lantern-slide work and enlarging in view will save you a lot of trouble Dense negatives require long exposures which are difficult to estimate, and seldom, with that, give soft results, develop ye ever so skilfully. As to exposure, the effect you wish to produce will have to be taken into consideration, but, in any case, I recommend a liberal exposure. A print that develops very brilliant—one that has been a little under-timed—will not tone well to the sepia or warm brown. It will be apt to look hard. For red chalk tones, however, which I will allude to hereafter, a stronger print should be produced. But for the present, we are dealing with the sepia and warm browns. A full exposure should, therefore, in my opinion, be given. The developer, again, should be made up to suit exposure and effect desired. I have recommended a dilute hydroquinone developer—say, one part of the mixed solution with two parts or more of water added; or, to put it otherwise, one part each of what we are in the habit of hearing called Nos. 1 and 2, or A and B, and four or more parts of water added.

This will not give a good black and white print. With slow Ilford paper it will give, in some cases, a very fair sepia, but generally a dirty brown. This brown image is the most amenable to the after-toning. With rapid papers you do not get this color. In using them, you must expose and develop so as to get a soft gray image with full

gradation. I don't mean the flat gray image resulting from over-exposure. The difference between the slow Ilford and any of the rapid papers under development is remarkable. With the recommended full exposure and dilute developer the image on on the slow paper first makes its appearance in a yellowish fawn tint, getting redder as development progresses, and passing on through brown to what appears to be black by canary light. After fixing, this apparent black turns out to be a brown. This is my experience most markedly with hydroquinone, and not so much with para-amidophenol. This yellow and brown appearance during development has made me conjecture that the slow paper might be a chloro-bromide. I have used a sample of para-amidophenol, which was kindly given me by Mr. Sargent, for some trials, and found it very suitable if sufficiently diluted. The development was slow. For producing good black and white bromides, however, it is not necessary to use it so dilute, but, as the development is very rapid, only the correct exposure is any good. It gives beautifully clear results.

A Developed Brown Image not a Necessity.

The brown image got by development is by no means a necessity, as the *British Journal* seems to make me insist. I have only *recommended* it, when working with hydroquinone developer, as being more suitable for receiving the after-toning. What, however, *is* necessary is that a soft and harmonious image be produced. Since the introduction of the phenol developer I have found it very useful for this purpose, and have used it in the form of rodinal almost constantly in place of hydroquinone. It gives a print of great delicacy of a soft gray tone, and may be diluted for that purpose to from 1 in 100, to even 1 in 400, according to the strength of the negative from which you are working, and the effect you wish. Of course, diluted so much as the last figures, rodinal would be useless for producing black and white prints. They would be much too flat, but such an image, you must remember, gives very often an excellent toned print, as the toning agent has a decided intensifying effect.

The prints are, of course, fixed in the usual way, and the after-washing must be very thorough, as the least trace of hypo produces a red stain the moment it comes in contact with the toning bath. "Tae mak' siccar," as we say in Scotland, before toning, I treat the print for five minutes in a bath of

Peroxide of hydrogen (20 volumes)...	1 part
Water.....	40 parts

and wash again for five or six minutes.

The toning bath may be conveniently made up of the following strength:

Glacial acetic acid.....	10 minims
Potassium ferridcyanide.....	½ grain
Uranium nitrate.....	½ grain
Water.....	1 ounce

This will not act too rapidly. It may, of course, be made stronger if desired, and I do so on occasions. The prints quickly change color, the sepia stage being reached in a couple of minutes, and five or six minutes, as a rule being sufficient to get warmest brown you would care for. If carried on, the toning will continue till it reaches a heavy black red, and until recently this was the nearest I could get to the chalk-red or Bartolozzi print tint. Within the last few weeks, however, I have discovered a mode of getting much brighter red tones, and this I will describe presently. The toning action may, if you like, be carried on some shades beyond the color it is intended to finish, and the final determination of the stopping point left till the next stage, the washing. But this over-toning, again, is by no means a necessity, although it has been suggested that I have insisted upon it, and that I thereby erected a barrier to its simple working. The print may be taken from the toning bath as soon as the desired color is reached, for the necessity after-washing is so slight that very little reduction will occur.

(*To be continued.*)

Notes and News.

H. Snowden Ward, editor of *Practical Photographer*, of London, has been spending the week in New York.

Next week we shall begin a series of articles on Picture Making in the Studio, by H. P. Robinson.

Our picture next week will be the long promised one, by Mr. J. Wells Champney, artist. It is a most artistic photograph made at the "North Parish," Greenfield, Mass., near Mr. Champney's summer home, at Deerfield.

Messrs. G. M. Allen & Co., photo. engravers, printers and stationers, sustained a severe loss in their press rooms recently by fire. None of their other departments were injured, however, and arrangements were immediately made for executing press work in other quarters.

TONING WITHOUT GOLD.

An Open Letter to Mr. Henry J. Newton.

In the "American Annual of Photography and Photographic Times Almanac" for 1892 will be found, pages 43, *et seq.*, an article by Mr. Henry J. Newton, under the

heading of "Toning without Gold." In that article the following toning-fixing bath is given:

"No. 1.

Water	16 ounces
Hypo	4 ounces

"No. 2.

Water	16 ounces
Nitrate of lead (finely pulverized)	1½ ounces

"When the contents of No. 1 and No. 2 are dissolved add No. 2 to No. 1. This should leave a clear solution, as the hyposulphate (?) which is formed on the introduction of No. 2 to No. 1, is dissolved as fast as formed, and there is not lead sufficient for saturation. This compound will produce fine tones with very pure whites, but the gelatine becomes soft and has to be handled with considerable care, therefore to this compound should be added 1½ ounce of pulverized alum in small quantities at a time, stirring continually while adding it.

"This will produce a reaction, and the solution will become turbid and should stand for twenty-four hours, when it will be ready for use.

"It can be used repeatedly, only by adding hypo occasionally.

"*The prints should be immersed without washing* (the italics are mine) and kept in the bath until the desired tone is reached.

"For some samples of gelatine paper this formula works better:

"No. 1.

Water	16 ounces
Hypo	3 ounces

"No. 2.

Water	16 ounces
Nitrate of lead	1 ounce
Alum	½ ounce

"Compound the same way as above described.

"There is, I know, a popular prejudice against any process of toning in hypo bath, and the production of what is termed sulphur tones. What may have been the result of similar processes in the treatment of albumen paper should be no criterion by which to decide this question of permanency of gelatine paper."

After stating that the causes of fading of albumen prints have been discussed by many writers on photography, Mr. Nelson says: "My opinion is that the main cause of the trouble resides in the action of silver on the albumen.

"*By some it is claimed there is a combination of silver and albumen, forming what is termed albuminate of silver. I have never seen an analysis of such a compound and do not believe any such exists* (the italics are mine). The fact that silver nitrate coagulates albumen is no reason for supposing that there is a combination. A great variety of things will coagulate albumen without combining with it; for instance boiling water, alcohol, and quite a number of the mineral nitrates. I am writing now of egg albumen, which in some respects differs from serum albumen in its power of forming compounds."

Now the toning and fixing in one operation, especially without previously washing the prints; the fading of albumen prints not a criterion for that on gelatine; the belief without investigation that there is not a combination known as albuminate of silver, upsets all my knowledge in chemistry and in photography, and as I am far from knowing *all*, I asked instructions in an open letter published in the TIMES for December 25th, 1891, page 666, saying:

"As I am much interested in the chemistry of photography, I would be much obliged to Mr. Newton to explain the action of nitrate of silver on albumen, how it may cause fading, and what is the theory of the lead alum toning process without washing out the nitrate of silver (I may have added the acid) from the prints. Is lead deposited on silver? What is the chemical equation? Is sulphuration avoided? How?" and I signed, "Wm. X." The whole letter, I must state, is written in a polite manner, as it should be when one writes an anonymous letter.

To this Mr. Newton replied by personalities, of which I take no notice,* and by answering questions by questions, which is an easy manner of evading a discussion. However, he is careful of reminding the readers of his experiments on collodion emulsions for negatives, etc., etc., but does not say a word about those compounded for the printing-out process. He states that "He (myself) seems entirely unacquainted with the fact that my (his) article is treating of a method of toning pictures produced on the surface of a gelatine emulsion of silver chloride." But, pray, Mr. Newton, what is the difference in the results of your toning-fixing process if applied to prints on a gelatine or albumen surface, these two substances serving to hold the silver chloride which by its reduction under the influence of light forms the photo-image?

Then, and lastly, Mr. Newton says in this reply—for there is another one—"What I wrote on the subject (the albuminate) was simply to show that because a substance coagulates albumen, it is no evidence that a chemical combination has been formed with such substance." True! that is well known, but about the albuminate of silver, a compound of which you have stated before that you "*do not believe any such exists?*" You reply: "I will quote what I wrote on the subject: 'I am writing now on egg albumen, which in some respects differs from serum albumen in its power of forming compounds.'" and you add, "If this does not state that albumen has the power to form compounds, what does it say?" Then you believe and you do not believe that a compound termed silver albuminate exists!

In my reply I reiterated my unanswered queries, wondering how Mr. Newton could have forgotten his usual urbanity on this occasion.†

The answer I found in *The Eye* for March 12.

Mr. Newton first makes a furious charge against the editor of THE TIMES, Dr. Ehrmann, and myself. I have no commission to speak for Mr. Lincoln Adams, moreover there is no need of it; his character stands above all such insinuations, from whatever part they may come. As to Dr. Ehrmann and Mr. Duchochois, the idea of turning Mr. Newton into ridicule *never* occurred to them, and on second thought you will give them that justice. If Mr. Newton has placed himself in a bad place, it is his own fault by not simply replying at a scientific point of view—not ours! Now I pass by the personalities in which Mr. Newton's answer abounds; personalities are generally the arguments of those pleading a lost cause.

As in the preceding answer Mr. Newton does not reply to my questions which are qualified as silly and my letter as full of misstatements, but he is kind enough to say that I am an "interesting and intelligent writer on *all* (*sic*) photographic processes. Then he adds: "I claim that he (myself) *must* know *all* about the construction of

* See THE TIMES for January 22, pp, 44 *et seq.*

† See THE TIMES for February 5, page 74.

gelatine emulsions and he *knows* that after the emulsion has set it is broken up into small parts and *thoroughly washed*, so that if by any mishap there should be any uncombined silver nitrate it would be *wholly* (the italics are mine) eliminated, as well as all other salts which may have been the product of the decomposition of the silver nitrate, but necessarily no part of the sensitive compound. If Mr. Duchochois will say over his own signature that he did not know this, I suppose we will have to believe him, and excuse him for asking such senseless questions. If, however, he knew all about it, then why in the name of common sense did he propound such a question, and what in the world was he driving at by asking this, another equally nonsensical question?"

Further on Mr. Newton is referring to my query, "What is the theory of the lead-alum toning process without washing out the nitrate of silver from the prints?" I have forgotten to add "and the acid."

Well, Mr. Newton, I do not know all, *non licet omnibus adire corinthum*, and that is the reason why I inquire for the explanations. I know, however, that thoroughly washing emulsions, compounded to take negatives, is necessary, not to eliminate the uncombined silver nitrate, which would spoil the emulsion, when making, by acting on the organic matter; there is none, since such emulsions are made with a great excess of an alkaline bromide, which is useful to effect the molecular changes which impart sensitiveness to silver bromide, but to eliminate the nitrates formed, and specially the alkaline bromide in excess. You make a mistake if you refer to the thoroughly washing of gelatine emulsion compounded for the printing-out process, which is the case in question.

Such emulsions are not thoroughly washed, but superficially. Some manufacturers do not wash them at all, some wash them once and rapidly, others, on the recommendation of Captain Abney, wash them twice and only for a minute each time.*

By the by, Mr. Newton, you have no doubt ascertained by chemical means what besides silver chloride are the constituents of aristotype papers—that is of the printing paper prepared with a gelatine as a medium for the sensitive compound—and this, of course, before devising and publishing your lead-alum toning and fixing bath, and your manner of operating, and your replies to my queries, in order to exactly know what will be the chemical actions, so as not to mislead the beginner and the practical photographer having no knowledge of the chemistry of photography? As to me, I did it long ago, before venturing my campaign against processes similar to yours. And I found that *all the aristotype papers contain an excess of silver nitrate and a certain dose of an uncombined acid, citric or tartaric*, the silver nitrate in excess being necessary to obtain vigor, the free acid for the same purpose, and to keep the paper white only, that is, to prevent for a certain period the action of the organic matter on silver nitrate. I did not make a quantitative analysis. It is not necessary; the presence of silver nitrate and of an acid even in a very small quantity in the emulsion plainly indicating what *must be* the manner of operating and the process by which the image *must be* toned and fixed to secure the maximum of permanency.

Hence, Mr. Newton, you need not take the trouble to "excuse me for asking such senseless questions" as that of inquiring what is the theory of your lead-alum toning-fixing process without washing out the silver nitrate, and, I should have added, the free acid from the prints.

As to your answer to Dr. Ehrmann, I have nothing to say, but it seems to be quite incomplete. I expected better from you. Hardwich, who, you say, "used to be an oracle relied upon by photographers," and whom we still consider as an authority in photo-chemistry, is not an author to cite in a discussion on pure chemistry. Why not have quoted Mülder and Ruling, for example?

You ask me, Mr. Newton, what I mean by sulphuration. Why! you whom I know for so many years as a good photographer and an experimenter of merit—*this I say candidly, without mental reservation*—to ask me such a question! Well! I will answer it: Sulphuration† is not *a compound* but a *substantive* which is adopted by every photographer, since almost the beginning of the art, to designate the action by which sulphur is imparted to silver, the result being silver sulphide. See "Hardwich's Photographic Chemistry" and Fabre's masterwork, the "Traité Encyclopédique de photographie," Vol. III., page 84, and other authors, which it is not necessary to cite.

On the whole, Mr. Newton, you did not answer my questions. I reiterate them for the third time:

1*st. What is the action of silver nitrate on albumen and how is it a main cause of fading?*

2*d. What is the theory of the lead-alum toning process without washing out the silver nitrate* (*and therefore the acid*) *from the prints?*

3*d. What is the action of the lead thiosulphate in the toning process? Is lead deposited on the silver?*

4*th. Is sulphuration avoided? How! especially if the bath is used repeatedly.*

Now, Mr. Newton, please allow me to ask one or two more questions.

In your article in the American Annual of Photography, you say (page 45) that for "the thorough eradication of the hypo, I would recommend that it be done with nitrate of lead in the following way: water, 16 ounces; nitrate of lead, 48 grains. The lead in dissolving will produce a trace of carbonate of lead (?) this *must* be dissolved before using, and is done by adding a *few* drops of acetic acid. After the prints have been washed sufficiently to remove the superficial hypo, immerse them for five minutes in this bath and then was in clean water for five minutes, and every trace of hypo will be removed. This bath of lead nitrate should not be used stronger than I have given it, *because of its toning properties* (the italics are mine), and if used stronger would carry the toning too far before the decomposition of the hypo was effected."

This is indeed a very expeditious manner of getting rid of the thiosulphate and of washing the proofs: ten minutes and all is done! But before we adopt that process we want some explanations; for my part I would like to know the pro and con, so I ask first:

How does nitrate of lead act as a toning agent in the case now in question?

* Gelatine also combines with nitrate of silver, and, therefore, the mere washing of gelatinized sensitive paper in cold water for a few minutes does not remove the whole of the free nitrate.—*Hardwich.*

The reader knows that gelatine emulsions for printing by the continuous action of light are prepared with excess of silver nitrate and a certain percentage of an organic acid.

† In my first letter I made a *lapsus pennæ*, instead of sulphuration I wrote *sulfuration*, which is the French manner of spelling.

The reader knows that I am a Frenchman by birth.

Your toning-fixing compound contains in solution, as every other one, besides sodium thiosulphate a quantity of silver thiosulphate, so much the greater it has served to fix the greater number of prints, especially if they have not been previously washed. Well, then, I ask:

What is the action of the lead nitrate on silver thiosulphate?

If you reply simply to these questions which bear on chemistry, the knowledge of which is so important to every photographer, I will tender you my thanks and carry the discussion further on in case I do not agree with you on the reactions which take place. But should you again indulge in personalities or in improper insinuations, I will not.

P. C. Duchochois.

THE PHOTOGRAPHIC SOCIETY OF PHILADELPHIA.

(*Continued from page* 163.)

Mr. Cheyney said the description of this glass was a great deal like the descriptions of the lenses. The difference between a lense and a pin hole was very slight in their relative rapidity, *i. e.*, if the pin hole had a corresponding ratio to the focal length of the lens to be put there, and the same diaphragm used as the size pin hole represented, the difference in speed was immaterial—it could not be distinguished. If they had a diamond lens it would make no difference. All this glass could do was to give them the power of covering more field sharply. As for the talk about one lens being faster than another, if the holes through which the light passed were of the same relative size of the focal length, there would be no difference in the speed of the two lenses, unless one of them were made of the most abominable glass.

Mr. Carbutt inferred from this that Mr. Cheyney did not believe in Jena glass.

Mr. Cheyney said he did believe in it, but there was no difference in the speed under the conditions he had just mentioned.

Mr Carbutt begged to differ; he thought there was.

Mr. Ives stated that he thought the whole matter was explained by the fact, not generally understood, that the ordinary glass used in constructing photographic lenses was practically opaque to some of the violet rays. It might be that the new Jena glass allowed more of the violet rays to which the photographic film is sensitive to pass through it than did the ordinary glass heretofore used.

Mr. Stirling spoke next upon the subject announced by circular, viz.: "Recent Appliances for the Optical Lantern." He desired to call the attention of the members to two matters in that connection. They were all familiar with the subject of the tele-photographic lenses referred to at the last meeting. As was well known, this consisted merely in the adaptation of the photographic objective and the eye-piece of the old Galilean telescope.

Referring to the application of this principle to photographic lenses recently made by Mr. Dallmeyer, of England, and Dr. Miethe, of Germany, Mr. Stirling thought it was worthy or record that so long ago as the spring of 1891 the same idea was taken up by a Philadelphia optician, and applied in a slightly different way, though utilizing exactly the same principle. He referred to Mr. Knipe, of Queen & Co.

It occurred to Mr. Knipe that by using the amplifier of the microscope back of the objective of the lantern he could increase the power in the hands of the lantern operator. His application for a patent was filedlast April, so that if priority for the adaptation of an old principle could be claimed, that honor was certainly due to Mr. Knipe, of Philadelphia. The name given to this adapter was the "multi-focal attachment," his idea being that the use of a double-concave lens back of the objective provided a series of image-producing points, and by adjusting the distance of the lenses, images of various sizes could be thrown upon the screen.

After adjournment, Mr. Stirling gave a practical demonstration of the powers of the "multi-focal attachment."

The other matter in connection with the lantern, Mr. Stirling said, was the making and storing of oxygen. Those who had tried the old process of making oxygen as they needed it, and using it from rubber bags, knew what an insufferable nuisance it was. The English operators presented rather a contradictory spectacle. In America rubber bags had been almost entirely abandoned, while in England they were still used to a very considerable extent. Within the last year or two, however, a London company has been organized to make oxygen by a different process from the one heretofore used, and it had been introduced in small steel cylinders, in which the oxygen was compressed up to 1,800 pounds, or 120 atmospheres. These cylinders were now used to a great extent in England, and their portability alone, if there was nothing else to recommend them, was sufficient to insure their favorable consideration, when compared with the cumbersomeness of the cylinders used in this country.

Mr. Stirling here introduced to the members Mr. Charles William James, Manager of the New York Oxygen Company.

Mr. James illustrated the use of the steel cylinders or bottles containing oxygen and hydrogen gas, and explained at length the process by which oxygen was made by the company he represented. He was materially aided in this by diagrams thrown upon the screen.

Mr. James stated that the safety devices used in connection with these cylinders were such as to practically preclude all possibility of accident; the smaller sizes were light and could easily be carried under a man's arm, and every cylinder was tested at a pressure of two tons to the square inch. The consumption of gas for an ordinary single light lantern would average five to seven cubic feet per hour. The cylinders exhibited contained forty cubic feet.

Mr. Cheyney exhibited a simple device which he had made, modeled after the new tele-photographic lenses. Various slides from negatives with this apparatus were shown upon the screen.

Mr. Redfield called attention to the fact that the perspective in pictures taken with such a lens, while correct for the distance from which they were taken, was not the same as it would be if taken with a lens of the ordinary focus from a point at which the same amount of detail would be plainly visible to the human eye. It was, therefore, as unnatural, in the opposite direction, as the perspective of an object taken at too close quarters, with a lens of wider angle than the eye takes in naturally. While he believed fully in the use of long focus lenses of the ordinary type, and that this lens would undoubtedly be of great value in certain directions, he thought it proved that

from an artistic standpoint lenses could be too long as well as too short in focus.

Mr. John R. Clemons showed several plain silver prints toned in ordinary gold solution with the addition of the chloride of aluminum. The result was a peculiar warm brown tone of great beauty, with very clear whites.

Adjourned.

Robert S. Redfield.
Secretary.

The Editorial Table.

From Geo. Fiske, of Yosemite Valley, Cal., we have received a collection of winter photographs, which are truly remarkable in their faithfulness to nature. Several are taken during severe snow storms, and preserve all the appearances of the falling snow. One picture shows the zig zag trail up a mountain steep with a train of pack mules making the difficult ascent. Another view shows Mr. Fiske's own "den," almost hidden by the snow drifts. Altogether we have a most interesting collection of photographs.

We have received from Mr. Arthur L. Muir a photographic copy made by one of the numerous photographers of Evanston, Ill. It is a snow landscape with clouds exceedingly well lighted, and conveying a truly realistic impression of the subject. The negative was developed with hydroquinone, which accounts for the somewhat harshness of the distant parts of the picture, harshness which would have been avoided by developing with ammonia pyro in operating by the temptative method. On the whole the picture is very good.

Mr. Muir says that he sends us this photograph "as a trifling evidence of the appreciation he feels for the great help we have rendered to him through THE PHOTGRAPHIC TIMES." It is the duty of the TIMES to promote the advancement of photography not only by its articles but also by the advice it is always glad to give to those who ask for it. It is for this reason we recommend to develop with pyrogallol, which we think to be the most reliable developer, and in the manner above stated.

Record of Photographic Patents.

471,088. Photographic Shutter. Fredrick A. Anthony, Hackensack, N. J., and William H. Lewis, Huntington, New York.

471,186. Art of Producing Colored Photographs. James W. McDonough, Chicago, Ill.

471,187. Art of Producing Colored Photographs. James W. McDonough, Chicago, Ill.

471,387. Photographic Album. Joshua R. Jones, Philadelphia, Pa.

471,422. Pyroxyline Varnish. Julia Hall, Crawford, New Jersey.

471,469. Madrine for Forming Flexible Photographic Films. George Eastman, Rochester, N. Y.

471,512. Photographic Camera. James H. Hare, Brooklyn, N. Y.

Queries and Answers.

233 CHARLES H. N., of Massachusetts, writes: (1) Please give me a good receipt for the best paste for mounting the Scovill Omega paper prints, that will retain their fine lustre. (2) Also the method of refining the Omega combined toning and fixing bath for the silver.

233 *Answer.*—(1) Standard formulæ 124 and 125, page 276 of "American Annual of Photography" for 1892, are excellent pastes for the purpose. But you must not moisten the squeegeed print, if the gloss is to be retained. (2) Add sulphuric acid to the spent toning bath, and allow to settle; dry the precipitate and roast it, when the sulphur liberated from the solution will burn off, leaving gold, silver, or any other metal that may be there, as a residue. If you remember that in an eight or ten ounce bottle of bath there are but a few grains of chloride of gold, and that this small quantity has been nearly exhausted after toning forty or fifty prints in it, the recovery of gold is a not paying operation, whether or not it will be profitable for an amateur, who uses but little of the paper, to make efforts to save the silver from the toning bath is also quite doubtful, when the work to be done is considered.

234 D., OF OSAGE, TEXAS.—(1) I have been using ammonia to neutralize my silver printing bath. I now wish to change and use carbonate of soda. Can I do so without injury to the bath? (2) I have about 150 dozen 5 x 8 negatives that I do not wish to keep. I want to remove the emulsion from the glass by boiling them in water and use the glass for frames. How can I recover the silver in the emulsion? (3) Please give me a method of dissolving coin gold for toning prints. (4) Do you think that para-amidophenol makes a better developer than eikonogen for dry plates?

234 *Answer.*—(1) You can do so. If you want to be perfectly sure, heat your bath to boiling point, when any ammoniacal salt possibly present will volatilize. (2) After the gelatine films detached from the glasses are collected, mix with water and heat till the whole of it is liquified. Then add a sufficient quantity of sulphuric acid, enough to destroy the adhesive property of the gelatine, when the metallic deposit of silver will settle to the bottom of the jar. It will not pay to go to the trouble to recover silver from fixed negatives or positives. There is too little of it in them. (3) Dissolve the coin by the heat of a water bath in aqua regia, in the proportion of one part nitric and two parts of hydrochloric acid. After all the metal is dissolved evaporate to dryness, redissolve and evaporate again. Silver alloy will go down to the bottom in the form of chloride of silver; copper present does not injure the toning of photographs,—in fact some photographers seem to have observed, chloride of copper in the toning bath is rather beneficial. (4) We do most certainly, especially for economical reasons. Para-amidophenol, no matter how old, or how often used previously, does not stain the gelatine film as eikonogen does when development is prolonged.

THE PHOTOGRAPHIC TIMES.

AN ILLUSTRATED WEEKLY JOURNAL DEVOTED TO THE ART, SCIENCE AND ADVANCEMENT OF PHOTOGRAPHY.

Issued every Friday.

W. I. LINCOLN ADAMS, Editor.

SUBSCRIPTION RATES.

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" " one month's trial..... 50

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Size of advertising pages, 6¼x9¼ inches; outside size, 8½x11¾ inches.

One page, each insertion.....$20 00
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Quarter page, per insertion..... 5 00
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Copy for advertisements must be received at office one week in advance of the day of publication. Advertisers receive a copy of the journal free, to certify the correctness of the insertion.

All literary contributions, correspondence, "Queries," etc., should be addressed to THE EDITOR; all advertising matter to the Publishers,

THE PHOTOGRAPHIC TIMES PUBLISHING ASSOCIATION,
423 Broome Street, New York.

Commercial Intelligence.

Mr. B. F. McManus, operator for Pach Bros., at their New York studio, speaking of the "American Annual of Photography and Photographic Times Almanac," says: "It is a spendid work."

A recent letter from Dr. R. L. Maddox, inventor of gelatine dry-plates, expresses his appreciation of THE PHOTOGRAPHIC TIMES. "I beg you to feel assured" he writes to the editor, "that I am deeply grateful to you."

As we have already noted in our magazine, the well-known firm of Buchanan, Bromley & Co., photographic merchants at Philadelphia, have dissolved, W. P. Buchanan succeeding the old firm and continuing the business at the old stand, No. 1226 Arch Street. Mr. Buchanan writes that he will continue the same business in the same way as formerly, and that he is in a position to give perfect satisfaction to the old patrons of the firm.

A Grand Feast.—"The eight numbers of THE PHOTOGRAHIC TIMES sent for, came last week, and I must say that in the perusal of them, I enjoyed the grandest feast of really good things that ever fell to the lot of a photo graphic tramp. I shall endeavor to make it a continual feast."—J. M. L., Waubaunsee, Kansas.

"Thanks to your excellent eikoquinol developer all my troubles are past. I am making now flash-light pictures (very beautiful samples shown) that are perfectly satisfactory to myself and patrons."—MISS LUCY D. B., Roanoke, Va.

Carbutt's Fluid Stripping Medium is a compound consisting mainly of celluloid dissolved in amyl acetate, but of considerably higher concentration than crystalline, roxyline, or zaponese varnish.

To use the compound for the purpose indicated by the label, a gelatine negative on a stripping plate is first brought into perfectly level position, best done by means of three adjustable screws, upon which the plate is at rest, when the stripping medium is poured upon it. To effect superstrata of uniform thickness, distinct quantities of it are prescribed for each size of plate, one ounce of it for a 5 x 8 and two ounces for an 8 x 10 plate, or one fluid drachm for every five square inches of plate.

In a moderately warm room the stripping medium will dry within a few hours, when the edges of the film are cut in, and the pellicle is stripped in the usual manner.

We have given Mr. Carbutt's preparation a crucial test, and can conscientiously recommend it to all photo-mechanical operators who strip plates.

Its advantages over the old method of stripping with gelatine are: The solution is ready for use, it need not be heated like gelatine, it is interminably durable, there is no fear of injuring the negative by over-heating as occurs with gelatine, it dries readily, and in a shorter time than a gelatine solution, provided the temperature is not too low. If subsequent retouching becomes necessary the pencil will be found to take readily to the celluloid film.

The compound is put up in pint bottles and sold at 90 cents per bottle.

122 GEARY STREET,
SAN FRANCISCO, March 1, 1892.

After several years' service in the employ of Mr. Sam C. Partridge, the undersigned has established a Photographic Stock House at the above address.

I shall carry a complete stock of outfits, apparatus, and supplies, aiming to keep only the latest and most desirable goods on hand.

All orders will receive prompt and careful attention and the best goods the market can supply will be furnished.

Special articles not carried in stock will be obtained from the manufacturers for customers so desiring.

You are cordially invited to call and examine the new store and stock.

Very truly yours,
WM. O. BACON.

For 1893.—The preparation of "The American Annual of Photography and Photographic Times Almanac for 1893" has actively begun. Several pictures have been accepted, a number of articles have been sent in, and eight pages of advertising have been taken. On account of the increased circulation of the publication the advertising rates have been slightly increased. For 1893 they will be as follows:

Full page.....$30
Half page..... 18
Quarter page..... 11

When it is remembered that these advertisements, the articles and illustrations were sent in entirely without solicitation, it shows an encouraging interest in the publication.

With an order for a page of advertising the other day, the following words of testimony were received:

"We take the page ****** at $30. ***** We don t blame you for raising the price. The 'Annual' is bringing us much new trade, many inquiries, and is *profitable* to us. You lead over all our other advertisements combined."

[Signed]
E. W. Newcomb & Co.

Business Notices.

CORRESPONDENCE SOLICITED by a photographer who intends visiting Mexico and the Northwest, or any special place to which it is desired he should go, for the purpose of making stereoscopic or other photographs. Correspondence solicited with a view of selling the right to publish such negatives as he shall make or the negatives themselves. H. MILLER,
578 Kosciusko St., Brooklyn.

BACK NUMBERS OF SUN AND SHADE, including Nos. 3, 10, 11 and later issues, in perfect condition, 25 cents each. Regular price is 40 cents, and the earlier numbers are at a premium. THE PHOTOGRAPHIC TIMES PUBLISHING ASSOCIATION.

WANTED.—Local and traveling agents to sell Photographers' Paste, Mucilage and Gums to the trade. Liberal commissions. THE ARABOL MFG. CO.,
13 Gold Street, New York.

RAPID RECTILINEAR LENSES AT COST.—4 x 5, $5; 5x7, $12; 5x8, $7; 6½x8½, $8; 8x10, $12; 10x12, $18; 11x14, $24. Write for price list.
W. P. BUCHANAN, Importer,
Philadelphia.

EXCHANGE.—An E♭ Clarionet, Grenadilla wood, 13 G. S. keys, for either a 5x8 View Camera, Hand Camera, pair Stereo. Lenses, or a Wide-Angle Lens.
A. T. TWEEDIE, Cadillac, Mich.

FOR SALE.—Photo. Outfit; cost $115; Camera, Lens and accessories. Voigtlaender Euryscope Lens. For sale low. GEORGE W. BURCH,
91 Asylum St., Hartford, Conn.

FOR SALE.—Half interest in a well-established, good paying photographic stock business in New York City. Having other business cause for selling. Address for terms, etc,
"STOCK," care of THE PHOTOGRAPHIC TIMES.

FELT BACKGROUNDS, $1.50 per yard; a 6 ft. x 6 ft. ground only $3, by mail $3.35.
THE SCOVILL & ADAMS CO.

PHOTOGRAPHIC BROKERAGE.—Established especially to furnish carefully selected outfits of any make or grade to those living at a distance. Address
C. M. BROCKWAY, 33 Worth St., New York.

ALL THE LATEST IMPROVED CAMERAS.—The Henry Clay, Hetherington and the new Kamarets. The improved Kodaks for plates or films, and the new daylight Kodaks. The new 4x5 and the new 5x7 folding Hawkeye Cameras. The Premiers, Triad, Waterbury and Rochester Cameras. Orders by mail promptly filled.
C. M. BROCKWAY, 33 Worth St., New York.

A FINE BARGAIN.—An elegant 6½x8½ Outfit complete; three imported lenses. Cost $200; price $125. Also a 4x5 folding Kodak; cost $50; price $40. Address
C. M. BROCKWAY, 33 Worth St., New York.

THE UNDERSIGNED has a few 6x5 Dallmeyer Rapid Rectilinear Lenses which he will sell for 20 per cent from list prices. These lenses are a late importation and are all warranted. Address "TOURIST,"
care The Scovill & Adams Co.

THE FINEST Platinotype Solar Enlargements and contact prints, in black and sepia, are made by
THE PLATINOTYPE CO.,
39 South 10th St., Philadelphia.
Send for price lists.

A FIRM OF PHOTOGRAPHIC DEALERS in London, having experienced travelers calling on the best photographers throughout the country, is desirous of obtaining the agency for an American photographic specialty, not now represented in England. Address in first instance, THOMAS ILLINGWORTH,
12 Gladys Road, West Hampstead,
London, N. W.

WANTED.—Choice stereoscopic negatives from all parts of the world. Address F. F. BRAILLARD, JR.,
423 Broome St., New York.

A NEW GUNDLACH LENS, covering a 5 x 8 plate, sharp to the edges, for sale cheap. Regular price $24. Will send C.O.D., subject to examination, for $18.
Address C.O.D., care THE PHOTOGRAPHIC TIMES.

THE finest-fitted Dark-Rooms in the United States are open for the accommodation of Amateurs, at 122 W. 36th Street. DARLING, Photographer.

THE ELDORADO BENCH AND WALL COMBINATION makes eight different combinations, every one of which is effective and artistic. Just introduced by THE SCOVILL & ADAMS CO. Price $20.00.

"THE PHOTOGRAPHERS' BOOK OF PRACTICAL FORMULÆ."—In order to make way for the SECOND EDITION of this popular book we make the following prices on those now in stock: Paper covers, 30 cents each; cloth, 60 cents each. Never before has a book of such great value been offered for so little money.
R. H. MORAN,
396 Broome Street, New York.

SEND FOR LIST of new "M. & V." Lenses to THE SCOVILL & ADAMS CO.

A SURE WAY TO PREVENT BLISTERS.—Use Haworth's Sensitized Paper. It won't blister. Spalding has it, so have Obrig Camera Co., and Z. T. Benson.
JOHN HAWORTH, Manufacturer, Phila.

WANTED.—Vols. 1, 2, 4, 5, 7, 8, 10, 12, 13, 17, 18 and 19 of THE PHOTOGRAPHIC TIMES, bound or unbound. THE PHOTOGRAPHIC TIMES PUBLISHING ASSOCIATION.

A BARGAIN.—A No. 6 Gray's Periscope Lens in first-class condition. List price, $22.00. Will sell for $15.00. Spot cash. Address LENS BARGAIN, care THE PHOTOGRAPHIC TIMES.

NO FUMING, NO BLISTERS.—Experiment with all the "papers" advertised, and learn. But when you want to make choice, spotless prints use WISSAHICKON SENSITIZED ALBUMEN PAPER. Tone it in compound bath and squeegee on ferro plate, if you like. Send 2 cent stamp for 4x5 sample to JOHN HAWORTH,
641 Arch Street, Philadelphia.

LANGILL. 10 East 14th Street, makes all kinds of outdoor negatives. Portrait photographers will do well to consult him when such is required. First prize for Architectural photographs, P. A. of A.

PHOTOGRAPH GALLERY FOR SALE OR TO RENT.—City 15,000; rent $10 per month; established three years; price, $700; only sold as the owner has to hire a man to run it. Cabinets $3.50 per dozen; ten backgrounds. A. E. F., 5 Essex Street,
Newburyport, Mass.

WANTED.—A good second-hand Detective Camera; state make, size, age and price. S. A. W.,
Care PHOTOGRAPHIC TIMES.

FLASH-LIGHTS AND HOW TO TAKE THEM! A complete treatise on Flash-Light work. Fully illustrated by Louis Clarence Bennett. Price, 50 cents, Order a copy now from THE SCOVILL & ADAMS CO.

THE PLATINOTYPE.

(PATENTED.)

Photographers can increase their business during the nolidays by advocating the Platinotype.

Send 30 cents for a specimen print, portrait or landscape, on our new heavy India Tint Mounts.

WILLIS & CLEMENTS, Patentees,
39 South 10th St. Philadelphia.

PARA-AMIDOPHENOL HYDROCHLORATE.

THE DEVELOPING AGENT OF THE FUTURE.

With para-amidophenol there is no staining of the film, as with eikonogen and hydrochinon when development is prolonged, absolute transparency and opacity is secured, and the time of exposure is reduced about 30 per cent. without injury to half-tones and middle-tints.

FORMULA FOR DEVELOPER.

Para-amidophenol (pure)	100 grains
Sodium sulphite (crystals)	3 ounces
Potassium carbonate	1½ ounces
Water	32 ounces

FOR USE.—Take 1 ounce of the above solution and from 2 to 4 ounces of water, according to the length of exposure.

The stronger the solution the greater the intensity of the resulting negative; the more diluted the solution the greater softness and more detail.

PURE PARA-AMIDOPHENOL HYDROCHLORATE,
IN ONE-HALF OUNCE BOTTLES,
$1 per bottle
THE SCOVILL & ADAMS CO.

Employment Offered and Wanted.

(These advertisements are inserted free of cost to photographers out of employment, in order to help them find situations.)

SITUATIONS WANTED.

By young man as operator or general assistant; has an experience of three years, and first-class references. Address J. A. Sheetz, Canal Dover, Ohio.

A situation as reception lady; can retouch, mount, spot, and be generally useful in gallery. Will accept position on moderate salary. Address Miss A. Fichtner, 738 Seventh St., Louisville, Ky.

A first-class operator, well experienced under the skylight and in the dark-room, and for a long time in one of New York's leading ateliers, desires to make a change. New York or Chicago preferred; best of references. Address for thirty days, "Operator," care of Prof. Charles Ehrmann, THE PHOTOGRAPHIC TIMES.

A thorough, practical printer and toner desires a situation in a first-class house. Samples and references. Address, stating salary offered, to Theo. W. Ryding, 417 Adams Ave., Scranton, Pa.

Position as first-class operator by thoroughly experienced man; best of city references. B. Williams, 342 State St., Brooklyn, N. Y.

As operator, etc.; thoroughly competent in all branches; many years practical experience; speaking English, French and German; will either accept fixed salary or work on percentage. J. Basano, Puritan Hotel, No. 183 Bowery, New York City.

As operator and retoucher, or as printer and toner; well experienced in all branches. Address C. A. Hoxie, 558 Madison Avenue, Albany, N. Y.

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$100.00 Cash in Prizes,

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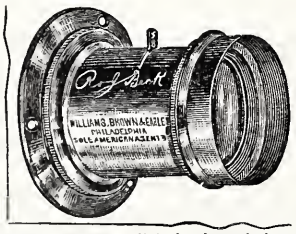
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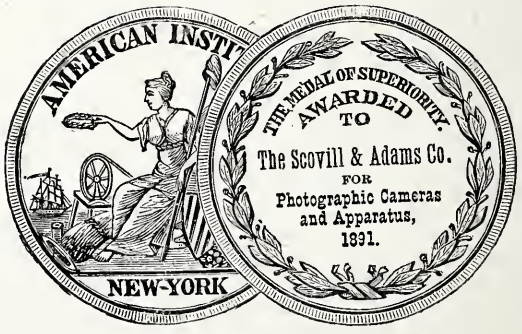
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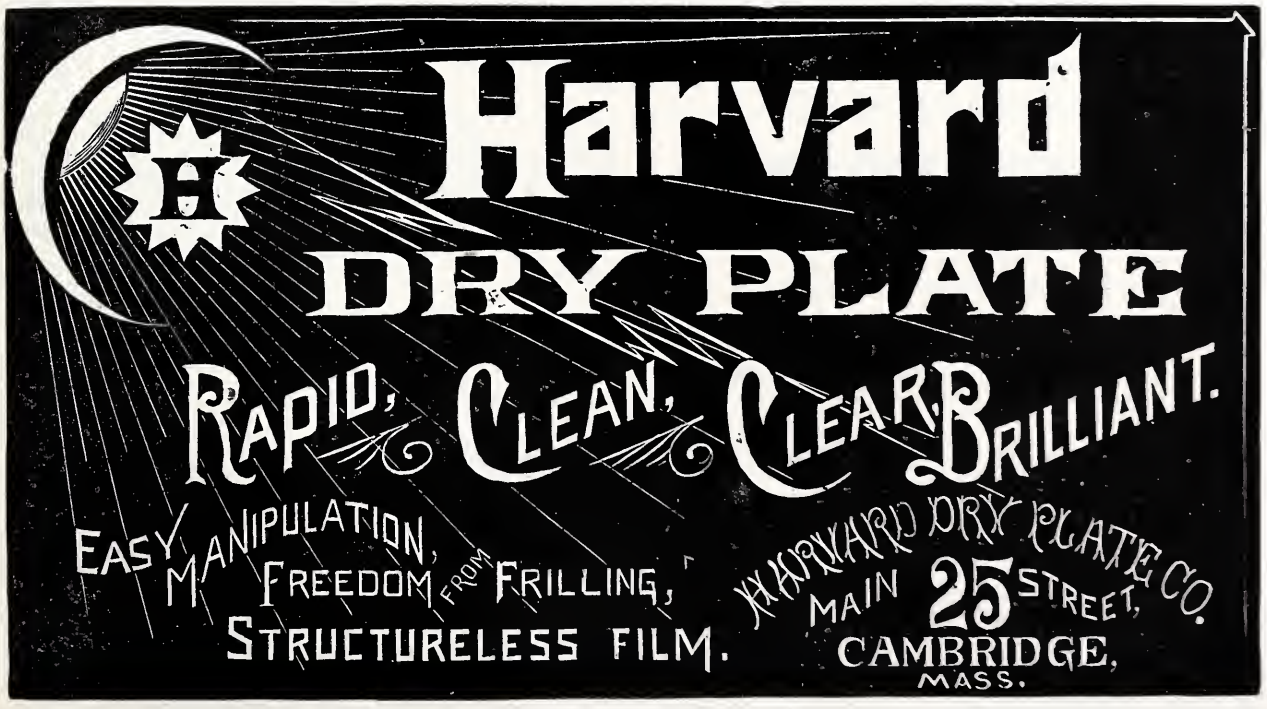
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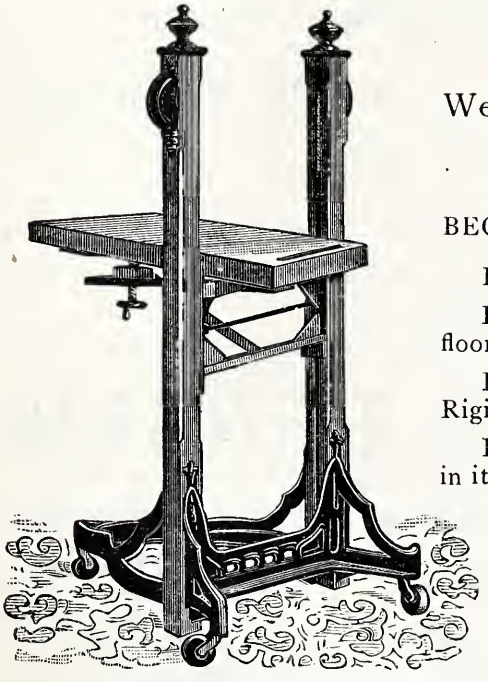
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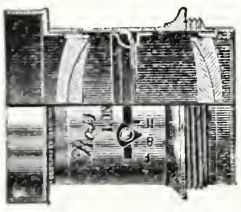
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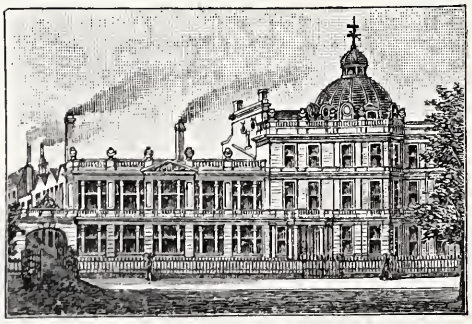
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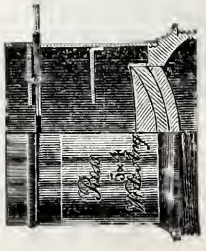
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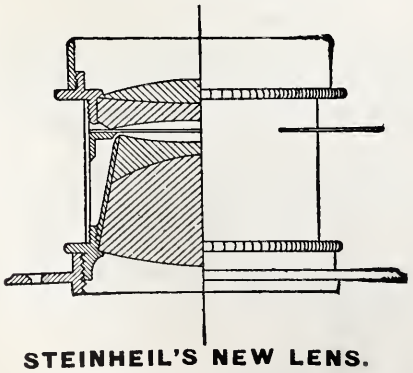
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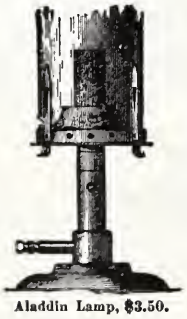
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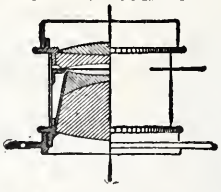
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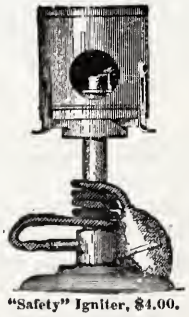
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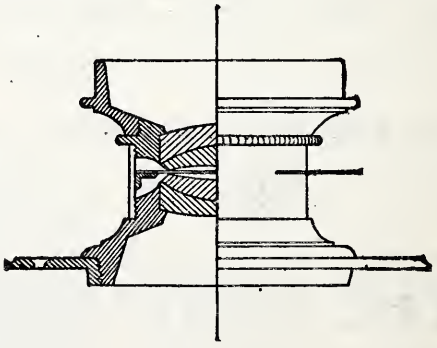


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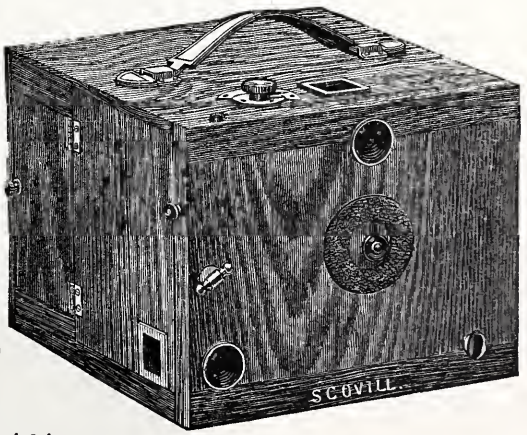
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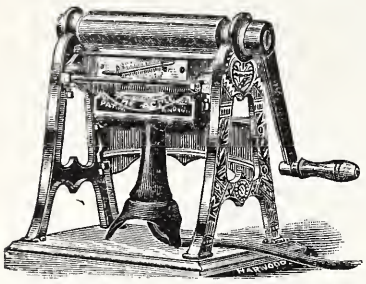
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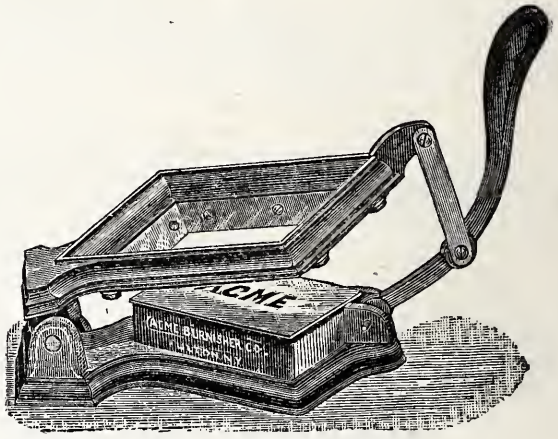
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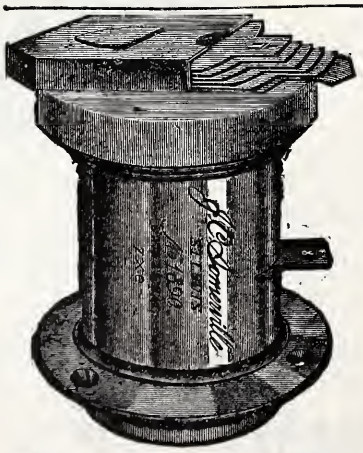
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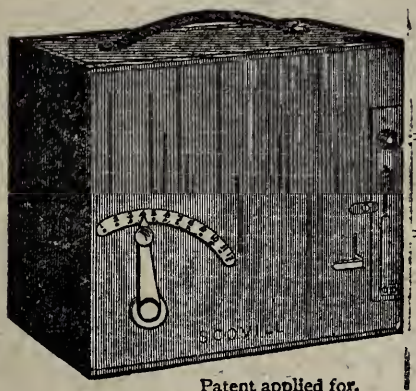
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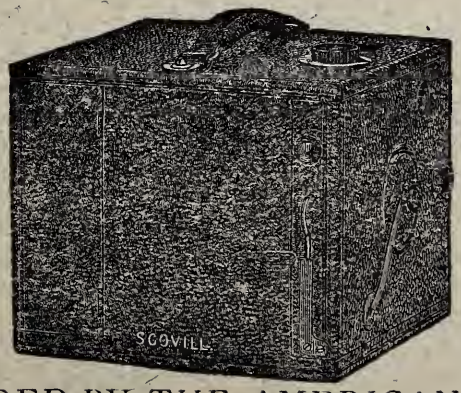
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NY PHOTOGRAVURE CO.

THE NORTH PARISH

GREENFIELD, MASS.

THE PHOTOGRAPHIC TIMES.

VOL. XXII. APRIL 8, 1892. No. 551.

THE "NORTH PARISH," GREENFIELD, MASS.

WE present our readers this week with the promised photogravure from artist J. Wells Champney's negative. The scene is at the "North Parish, Greenfield, Mass.," writes Mr. Champney, "and was photographed the latter part of last September after 5 o'clock of a cloudy afternoon. The plate was one of Wuestner's 'Eagle' brand, orthochromatic, without screen, and the lens an 8 x 10 portrait. It is quite apparent by the position of the hats on the heads of my friend and his boy, that I was aiming for portraits as well as landscape. I was so much interested in this as to neglect the arrangement of the foliage at the top of the plate, which I think I could have massed by changing slightly the point of view and helped my picture materially. There is a certain heaviness about the photogravure which translates pretty well the subject, for all the light was in the sky and the landscape came up dark against it." Continuing, Mr. Champney very kindly writes: "When any of your readers are in search of the picturesque they will do well to look for it in Franklin county, Mass. We have a most varied assortment of subjects, genre, still life, and landscape, and if they stop at Deerfield, my summer home, I shall be pleased to place my dark-room at their disposal."



A RECENT CHILLY ADVENTURE.

OUR PICTURE, entitled "A Recent Chilly Adventure," is from a negative by Miss Adelaide

Copyrighted.

Skeel, and is one which found a place in the *Buffalo Express*, having been entered in the contest for amateurs, started by that energetic paper several weeks ago. Miss Skeel writes, in regard to the picture, that "it was taken several years ago rather for the sake of philanthropy than photography, as the boys were my Sunday-school class. I called it 'Onward, Christian Soldiers,' but the title the *Buffalo Express* gave it is more clever. It was taken when the snow was falling, on a January afternoon, rather late, and developed with pyro and potash. It is a very dense negative, because a professional photographer came in to help me, and he pushed things to *extremis* with a view to silver printing."

Following is a brief autobiography of Miss Skeel which she wrote for our series of photographic biographies, in response to our invitation.

A PHOTOGRAPHIC AUTOBIOGRAPHY.

I believe you asked for some sort of an artistic autobiography, did you not? I can only say that I was given a $10 outfit in April, '85, with the condition that I should "never attempt to develop my own plates," but that after a few weeks of "taking" I got a one-solution developer and began to enjoy myself. My first picture, of about fifty orphan children and a dozen ladies, was made on a river-picnic in the rain. And that time I did not know



Adelaide Skeel

that the tripod's legs would separate and make the machine lower, so I asked for a chair to stand on in focusing! I exposed, while someone counted ten, with irregular intervals for advice, and when I developed the orphans appeared only to disappear, although I went through the whole process of fixing and washing most conscientiously and hopefully. The orphans never did return, but I enjoyed the sensation of seeing them for one delirious second more than I have ever enjoyed a plate's development since.

A year or more later I was inspired to tell others the "blessedness I knew" in photography, and wrote a most primitive account of my vast experience for a Sunday-School paper no longer in existence. It may be the editors and readers, one and all, bought cameras and never went back to their former pursuits. I do not know of this, but the article was to my surprise copied in The Photographic Times, and ever since then I have had much assistance and encouragement from all in any way associated with that magazine.

I have bought and borrowed many cameras, both view and detective, and first and last have found infinite satisfaction in photography in all its branches. I enjoy picture-making from the word go. I like every part of it, from the moment of planning a composition to the end—be it bitter or sweet—of mounting the finished print and wiping the paste from the front of my best dress.

I have made a few enemies but more friends by photography, but best of all it has helped me write the record of happiness in light, and blot out sorrow by making permanent impressions of cheerier days.

Yours very truly,

Adelaide Skeel.

Newburgh, N. Y., March 21st, 1892.

RAPID COLLODION PROCESS.

By request we publish the following formulas for a rapid wet collodion process, stating that the sensitiveness depends in great part upon the purity of the silver bath:

Collodion.

Zinc bromide	2 parts
Cadmium iodide	2 parts
Sodium iodide	2 parts
Zinc iodide	0.5 part
Alcohol	240 parts

When dissolved, filter, then add 6 parts of good, not much powdery, pyroxyline, then mix 240 parts of ether by small quantities at a time. Let settle for twenty-four hours and the collodion is ready for use.

Developer.

Ferrous sulphate	30 parts
Glucose	10 parts
Aqueous ammonia conc	2.5 part
Acetic acid No. 8	40 parts
Water	480 parts

Silver Bath.

Silver nitrate	40 parts
Acetic acid C. P.	3 parts
Distilled water	480 parts

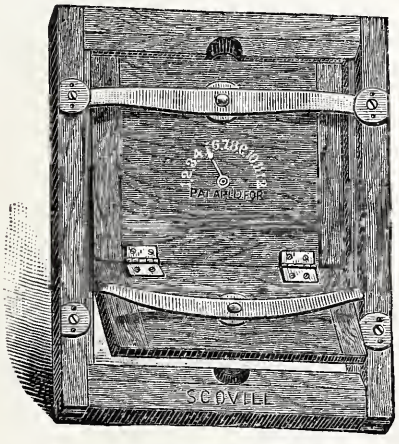
PHOTOGRAPHY FOR BEGINNERS.

(*Continued from page* 159.)

Printing.

We left our developed plates in a secure place, drying. As the sun shines brightly to-day, let us take them from the drying racks and proceed to make some prints from them.

For this purpose we must employ the printing frame which came with our outfit. This is a wooden frame which exactly takes the negative. After the plate has been placed in it, film side up, a sheet of printing paper is laid on the negative, sensitive side down. The wooden back is then put in, and secured at both ends by the brass springs, as shown in the cut. This back is hinged in the middle, so that it may be partly turned back and the progress of the printing process examined without moving the paper on the plate. When the plate and paper have been firmly secured in the printing frame, it is exposed to the sunlight, on a window-sill or elsewhere, care being taken to avoid any shadows falling upon its face from shutters or other projecting parts. In bright sunlight, three minutes is



THE PRINTING FRAME.

usually long enough to thoroughly impress the picture on the sensitive silver paper through an ordinary glass negative; but the print must be a little darker than it is desired to be when finished, as the toning, fixing, and subsequent operations bleach it somewhat. We can easily determine just when to remove the print from the negative by taking the printing frame from the sun, and, in a subdued light, observe how dark the print has become. This is done by unhinging one side of the back and lifting that part of the print thus released from pressure. When the print is dark enough, remove it from the printing frame to a box or drawer, where no light can get at it. Repeat the operation until as many prints are made from the negative as are desired, and then put another negative in the frame, removing the first one, of course. Make the required number of prints from this negative, and so on until all the prints are made that are wanted. We are now ready to take them from the box where they have been concealed from the sunlight, and proceed with the toning and fixing processes. But before we take up these interesting operations it would be well to know something more definitely about the actual printing itself.

The negative, as we know, is made up of more or less opaque and transparent portions; clear glass on the one hand, shading into absolute opaqueness on the other. And the whites of the negative correspond to the darks of the original picture, because the light, being weakest from the dark portions in the picture in nature, affected in the least degree the sensitive film of the plate, and thus left it nearly or quite clear glass. In like manner, tne bright spots of the picture reflected most light through the lens to the sensitive plate, and therefore darkened it. In proportion as the parts in nature are dark or light, just so are the images on the photographic plate light or dark. We can, therefore, understand how the print will be exactly the opposite of the negative again, and like the original subject in nature.

The light will pass through most freely those parts of the negative which are clearest, and thus will blacken the paper beneath to the greatest degree. Where the negative is dense and opaque very little light can pass through, so that the paper retains its original whiteness under those parts. Thus we obtain on the print the reverse of the negative, or a "positive," it is called. Positives may be made not only on paper, but also on glass, when they are called transparencies, or lantern slides, and are used for hanging in windows or for enlargement through a magic lantern or stereopticon. Then we have "blue" prints, bromide prints, platinotypes, aristotypes, and chloride prints, according to the kind of paper which is used for printing the picture by sunlight through the glass negative. Printing from a glass transparency, which is a positive, of course obtains a negative; and sometimes negatives are made on paper for certain purposes. As many prints as are desired can be made from one negative, for the operation is the same every time, and nothing is taken from the negative; the light passing *through* it makes the picture.

We have learned in this chapter only one printing method, the simplest of all, but the one yielding, perhaps, the most beautiful pictures It is called

"silver printing" by photographers, because the paper on which the prints are made was sensitized to light by coating it with a solution of nitrate of silver. The amateur can make his own silver paper without much trouble, though perhaps it is better at first to buy the paper already prepared. It comes in packages of two dozen sheets, cut to the different sizes of the negatives, and one package came with the outfit. Having learned how to make prints by this method, we will go on with the toning and fixing processes, and finish the picture we have commenced.

We left the batch of untoned and unfixed prints in a dark box. We must now take them from their hiding-place, and place them, one at a time, in a tray of pure water, face down. The tray which comes with the printing outfit will hold fifteen or twenty prints. While they are soaking there we will prepare the toning bath as follows:

Dissolve in fifteen ounces of water fifteen grains of chloride of gold and sodium, and pour three ounces of this solution into another tray, adding a few drops of a bi-carbonate of soda solution. Then add a pint of water to the toning bath and twenty grains of acetate of soda. After the solution has become colorless it is ready for use.

The prints are transferred from the water bath to this solution, facing downward as before, and are moved about so that they will not stick together. In ten or fifteen minutes the reddish color which the prints assumed in the pure water will begin gradually to change until a rich purplish-brown color is obtained. The prints must not be removed until this stage has been reached, but, on the other hand, they must not be allowed to remain so long in the bath as to acquire a bluish or slaty color.

After the prints have acquired the desired shade, take them from the toning bath and rinse them off in another tray of pure water. Then immerse them in the fixing bath, which is composed as follows:

Hyposulphite of soda.....	½ pound.
Carbonate of soda..... ...	1 tablespoonful.
Common table salt.....	1 tablespoonful.
Water.....	2 quarts.

In this fixing bath the silver compound not reduced by light is dissolved so that pure metallic silver remains, which is permanent and will not fade. It generally requires about fifteen minutes' soaking in the fixing bath to thoroughly accomplish this result. The prints are then removed and thoroughly washed again, for if the slightest trace of hypo is allowed to remain in the film it will gradually turn yellow on exposure to light and ruin the print. As in the case of the negative fixing bath, so here, the tray holding the solution should never be used for anything else, for the hyposulphite of soda is very difficult to remove, even by the most thorough washing.

The final washing is of the utmost importance, as on it depends to a great extent the durability of the prints. They should soak in a tray of clear water for several hours, changing the water a number of times during that period. Some amateurs allow their prints to remain in water over night and remove them in the morning after a thorough rinsing. In the final washing the prints should float face downward, so that the hypo will dissolve out of the film more easily, but in the toning process they may be turned upward from time to time in order to examine the progress of the process.

After the final washing the prints are hung up on a line to dry, or laid between blotters, and then are ready for "mounting" upon cardboards or in an album. This is done by covering their backs, while still wet, with a thin layer of flour or starch paste, and then placing them upon the cardboard paste side down, rubbing them closely to the mount by means of a paper placed on the print. A gloss may be given the mounted prints by running them through what is called a "burnisher;" but the print must be perfectly dry before this is done.

(*To be continued.*)

PICTURE-MAKING IN THE STUDIO.

Number I.

Judging from the results that come before me, particularly in the illustrations published in the photographic journals, studio picture-making is as much practiced in America as landscapes or outdoor figure composition. And, if I may be allowed to state my opinion freely, the success, in what may be called the higher walks, do not seem commensurate with the evident ambition, careful study, knowledge and industry of those who attempt them. It is easy to see that this partial want of success is not so much from deficiency of ability as, if I am not mistaken, from working in the wrong direction. More is expected and attempted than the nature of the art will permit, and the limits of our art have not been recognized. I will endeavor to explain more fully what I mean.

Picture-making in the studio is a very limited subject. There is a good deal to be done, but very little of which anything of definite value can constructively be said. It is true that much might be written on what at a first glance appears to belong to the subject, but that depends upon what you will

agree to include under the much-abused word picture. For my part I draw the line rather high. I will admit a good deal of making up, but in our present state of artistic education we are bound to exclude palpable sham, and all the make-believe we attempt must be so near the truth as not to be distinguished from that tyrannous dweller in the well. This at one blow does away with out-door scenes manufactured in the studio; painted backgrounds, except in a slight degree; moulded rocks; boats on canvas sands, or carpet; miniature masts, and sham swings. All these may be very well, and very useful in the ordinary business of portraiture—until the public will put up with them no longer—saving the operator much trouble in posing, and unfortunately, at present, pleasing the average sitter. I say unfortunately because it is depressing, in the present state of advanced general education, that such things give satisfaction. They do not belong to the higher art.

More than usual depends on the choice of subjects; we should attempt only what we can perform. Great attempts do not always excuse failures. Ambition should take the direction of a determination to execute a simple subject perfectly, rather than on the choice of a complex theme altogether unsuited to the art

It is better to save time by admitting at once that there are some subjects altogether beyond us. This must have been evident to all unprejudiced artistic minds in the results of the principal competitions at your conventions for several years. I have admired the enthusiasm and energy with which some of your photographers have attacked these gigantic essays. Knowing the difficulties in the way, I have even been surprised at the comparative excellence of the results; they show great knowledge of composition and chiaroscuro, and all that goes to the making of successful pictures, except that saving knowledge which recognizes that a subject is beyond your powers, or not fitted to the resources of your art.

If you will consider over all those photographs that have pleased you most from an art point of view, you will find—and, if you have not thought over the subject before, it will surprise you—that the best pictures, those you have considered the greatest triumphs of our art, have been of the simplest description. An ambitious subject may surprise by its daring, excite wonder by its mere size, and admiration by its display of art power, but these emotions are of the moment only, they don't last—and then comes the feeling of insincerity, and the whole wonderful castle in the air dissolves, it has no substantial basis. Your admiration may have been captured by the display of skill, and your sympathies won by the evident earnest effort, but you soon feel the fraud. The artist may call his picture Henry VIII. in the catalogue, and it may look like that much-married monarch, but when the spectator comes to his senses he says to himself, "Why, that is only Tommy Johnson from the theatre, after all!"

But we are not without resources. We have the consolation of knowing that so great an artist as Sir Joshua Reynolds says that "art in its perfection is not ostentatious." I should be sorry to infer from this wise saying that therefore the greatest art is the most lowly, but it is certain that very great art has been shown in most humble subjects. A good picture of a simple subject is an infinitely higher work of art than a mediocre historical picture, and it is a question whether some of the Dutch masters did not show as much art—as art—in their tavern scenes as was shown by Raphael in his holy families, or Titian in his mythological paintings. However that may be, it is certain that there are a great variety of subjects open to limited means of art such as photography, and the sooner we recognize our limits the more time we shall have to work within them. I am aware that there are those of quite a different opinion, who say, with Lord Lyndhurst, that "a difficulty is a thing to be overcome," and there can be no objection to those who care to make experiments to try to widen the limits to which our appliances seem to confine us, but to my mind it is better at present to try and reach as near perfection as possible well within our boundaries. It will be time enough to slay the giants after your weapons have been well proved on something less gigantic.

Photography is a real thing, and although it is not always bound down to literal fact, there is not much room in it for that "artistic license" which used to excuse any vagary of the painter. Its subjects should be selected from the incidents of our own time, but if we depart from them let there be no false pretense. If we represent a lady in a Greek dress call it frankly a lady in a Greek dress and not Aspasia. She does not live now, and you cannot photograph her—although it is just possible spiritualists will not agree with me.

The age of sham is over. We no longer delight in a thing because it is not what it pretends to be. In our houses we have ceased to take pleasure in the imitation of marbles in our wall papers, or in the delusion of grained doors, however near its imitation may be to wood; we are educated beyond caring for wax flowers, however much more beau-

tiful they may be than nature, and stuffed birds have been relegated to the hats and bonnets of those ladies who have so little taste as to wear them. In photography seas and skies taken by sunlight, and printed in greenish-blue autotype, no longer satisfy the cultivated mind as a substitute for moonlight. The legend, "All affectation is bad," should be written up large in the studio. Affectation and insincerity are at a discount, and laboriously built-up mongrel scenes, professing to represent subjects from poetry or history, pall on the taste, and leave a sickening sense of unreality of vision and a too great actuality of make-believe.

Not but what a great deal of talent may be shown in these mistaken attempts. In the Convention pictures to which I have alluded, I have been astonished at the excellence of conception, fertility of inventors, evidence of research, and the control of composition and light and shade, the apt selection and drilling of models, the industrious manufacture of costumes, and the laborious industry of their producers; but the effect on the mind is that which similar mistaken efforts had on Dr. Johnson, who wished that they were not only difficult, but impossible.

The artists who produced them are capable of better things, but they must get down off their stilts. I give some of them credit that they felt guilty over the work, and only did it because those subjects were selected for them to exercise their undoubted abilities on in competition for prizes.

I wish the Convention authorities could be induced to offer good prizes for simpler subjects more within the reach of the photographer, but not to indicate any particular subject. General directions may be given, but the choice and invention—a not unimportant part of the whole—should be left to the photographer. It is very desirable that this kind of picture should be encouraged. I am not sufficiently acquainted with the picturesque life of America to make definite suggestions. In England we have fine old cottages and other buildings that are the delight of the artist. They are, unfortunately, fast disappearing, but sufficient remain to furnish themes for many pictures. Rooms with immense fireplaces, with ingle nooks, blackened rafters, diamond-paned windows, and old-fashioned furniture. Not, perhaps, particularly comfortable or healthy to live in, but admirable material for the artist.

I do not know if you have anything similar in the land that knows not ruin or decay, but surely there must be some interior subjects that would afford scope for artistic treatment and picturesque effect. Mothers and children are to be found everywhere in all grades of life, and give opportunity for illustrating the whole range of feeling; old men are not scarce; dogs and other animals are always ready to give a motive, and I have seen a quantity of excellent photographs from your side in which the irrepressible nigger was the prevailing characteristic.

I am afraid that the photographer must be guided, in some measure, in the choice of his subjects by the models and accessories at his command, somewhat after the manner in which Nicholas Nickleby had to regulate his dramas to the resources of the company and to include the real pump and washing tubs that Mr. Crummles had bought a bargain. It is not my business here to suggest subjects. I am not presumptuous enough to attempt to try to teach the art of imagination. New ideas, or what are called new ideas, are often thought to be the suggestions of sudden inspiration, but they are more ordinarily evolved from antecedent facts or surrounding circumstances, and the photographer may feel sure that the more practice his imagination has the more fertile will it be.

In another article I hope to show how a studio-made picture was conceived and executed, and in that way bring the subject more home to the photographer than can be conveyed in any amount of generalization.



H. P. Robinson

The foregoing article is the first of a series on this important subject. Later articles will, in all probability, be illustrated.

MUCH interesting matter is, of necessity, crowded out of this number of our Magazine.

PHOTOGRAPHING WITH HER.

(In the South.)



IT was in Maryland, and there was nothing more stiring in the air than a strife about developers and plates. Tom was in earnest and Mary was in fun, but both were armed with cameras and both were determined to shoot off a dozen plates at something or nothing Tom particularly, seemed to have contracted with himself to take the whole earth's surface in 4 x 5 sections, and wherever he went he was haunted and hurried by the fear he had failed to choose the best bit in the best light. Possibly, if he had not been doing this he might have been doing something equally exhausting, for instance, seeking a tennis championship, or to be accepted by the leading magazines, and since "one must lead some life beyond, have a bliss to die for dim descried," doubtless to focus on the latent image hurts the latent image and mankind at large as little as any other fad. He had bought his machine when his mind was plastic, but Mary had borrowed her's when her mind was made up. Tom did not expect things to be otherwise for he had photographed with ladies before.

"How's all?" he asked, on meeting her, proud to exhibit his knowledge of local idiom after a week's residence.

"Pawly, praise God," was her ready answer, learned from the oral phraise-book of the nursery and a succession of black nurses.

"Does your machine takes folks?" he asked, carefully pronouncing the "l" like "r," as if alluding to the American substitute for chop-sticks.

"No, I wish it did, for I saw a woman on the pike just now having her wool "banged" while another lady of color held a bit of broken glass for the amateur barber, also of color, to see how the work progressed. All about were young wenches admiring and advising. It was too funny, but I have a fixed focus, and always blur people, while I never can resist trying, and this time it was too good, and I snapped at the group, but African complexions are so hopelessly non-actinic."

"I have found 'Uncle Tom's Cabin,'" said Tom. "It is well-placed in the sun, white-washed and——"

"Where is it at?" she asked, after the manner of English as she is spoke in Maryland."

"Half a mile away."

"Across our branch?"

"Beyond your 'run,'" he continued, determined to give her a Virginian phrase in exchange for her Marylandism, but both meant "brook," you know, of course.

"Shall we drive there right now?" she cried.

"If you like," he answered, and of course she liked, for Mary liked photography, and did not dislike Tom, but this last has nothing to do with photography in the strictly scientific sense.



The cabin and the bedquilt on the clothes-line were so simple that the artists used up a second plate apiece on a view of one or more architectural pretensions with a "lean-to" addition. Only seven of the nine children were at home, but the father and mother came out when the machines were focussed at the white-washed shanty. The newest and blackest was of course also brought out and equally, of course, was he found to be named for our Chief Magistrate.

"Now, Harrison, mind your manners," said the fond mamma, the look-pleased-wink-freely-moisten-the-lips formula not having been as yet introduced into the sunny South.

The children of "poor white trash" are usually named for Cleveland as Tom learned when Mary stopped a small boy to ask to have a pair of bars taken down that entrance could be gained to a hay-field.

"Thanks, Grover," she said, sweetly, giving him two sticks of candy which she had perhaps bought to sugar her own day before her escort appeared to sweeten it more satisfactorily.

"I reckon you don't fool me," was the surprising answer, to which ungraciousness was added as the child thrust his hands in his pockets, "you hain't got nothing."

"It is really something nice, Grover, do take it"

"You are right smart kind," stretching out his hand timidly, after a pause occupied in shuffling his bare feet in the white dust of the turnpike road," thank you, if it is anything, which I reckon it ain't."

The boy would certainly have made a better study than the hay-cart, but Tom was always determined to seize on any well-lighted object, regardless of subject, while his companion pointed her lens at anything in sun or shade, were it but picturesque or characteristically local. It goes without saying that people looked with the most pleasure at her album, and invariably said: "Why does not your friend take such nice things?" meaning that Tom's views of trains at lightning speed and groups in glaring noonday bored them. Only other amateurs and Mary herself knew how large a proportion of her plates turned out clear window glass from under-exposure, while Tom boasted, "never a failure." He could have added, "never a success."



They both agreed that the horses feeding in a well-illuminated field were good subjects, and the girl brought out the interesting details by saying, as she set her shutter, "Papa remembers when that field was just crowded with cavalry officers' horses."

"Blue-coats or Gray?"

"Union, of course. Maryland was never disloyal—"

"But there was slavery—"

"That could not be helped. Papa found himself a slaveholder when he came of age, and nobody was gladder than he and mamma when the war freed them. Mamma, particularly, was worked to death taking care of them and their families—it was always helping and giving, and nursing a lot of half-grown-up children."

"Poor things, it was slavery that—"

"Now, stop or we shall quarrel. It was you horrid Abolitionists that made them suffer—if we had not taken care of them after the war they would have died of starvation and cold. I was brought up to think the Abolitionists the wickedest people in the world—I never really believed they were human beings till I grew up and—"

"Saw me—"

"You were not the first man I saw when I grew up, sir, if you please, but do not let us say another word."

"I have not said many—"

"No, but I wanted to make you understand that we were as glad as you, for we knew the evils of our system and we dearly loved our colored people—"

"Yes, yes, no matter—" Tom was too young to remember the smell of powder, but it seemed strange to him to realize that there had to be a long and bloody war, when both sides, North and South, were of one mind about the evil of the cause.

A diversion was happily effected at this uncomfortable moment by a branch of a tree which hung over the road. He stopped to break a twig, saying as did so that he had been looking everywhere for some persimmon leaves and fruit to take home. "It is so 'characteristically local,' as you say," he explained, as he tucked it safely away in his outfit box, "and you tell me my views lack this—now I am all correct that I have the persimmon which is never found at home."

"Oh," she said, in noncommittal fashion, wickedly concealing from him the botanical fact that he was hoarding a specimen of pig-nut.

Shortly after this they parted, and he gave her, not what he erroneously supposed to be a persimmon, but what he made sure was her camera; but, alas, a week later, when he developed the films, he found her's all high failures and none of his own low successes.

"Never will I go photographing with a girl again," he said, as he whistled a few bars of the song:

> "Plunder of earth shall be all his own,
> He travels fastest who travels alone."

Nevertheless, he keeps a faded branch of a tree which never bore persimmons, in his dark-room, and means next summer to revisit Maryland. I may add, it is the editor's secret and mine how the outlines which appear with this story were secured.

Adelaide Skeel.

URANIUM TONING OF BROMIDE PRINTS.

(*Continued from page* 176 *and concluded.*)

Washing, Drying, and Finishing.

The colored image, or rather the colored deposit on the image, however, is very soluble in water, so that any *too great* redness can be easily got rid of simply by continuing the washing a little longer. When the print leaves the toning bath, the high lights are of a lemon yellow color. Five or six minutes in running water will be sufficient to remove this, and the print is then ready for drying and finishing. If it be, however, still warmer than is desired, the washing will be continued till the color has reached almost what is wanted, some allowance being, of course, made for a little darkening in the drying.

This point being reached, it is important that the print be blotted off in clean blotting-paper or calico till it is surface dry, as, if the moisture be left in patches on the surface, there will be inequality of tone when the paper is dry. This forms a decided drawback to the use of uranium as a toning agent for lantern slides, as it would be sure to spoil a slide to blot it surface dry, unless there is some absorbent substance that could be used for the purpose that leaves no woolly stuff behind it. The use of spirits to expell the water will, no doubt, obviate this difficulty. The omission of the blotting off in the case of paper prints has been the cause of a good many failures which have been referred to me by correspondents. To produce a set of prints, all of the same depth of color, blot off one at the required color, and set it on a glass plate, or any other clean support, at the side of your washing tank, blotting off the others, one by one, as they reach the same tint.

I may just add a word here as to the mounting of prints. Some enlargements have been submitted to me in which the tone has been considerably reduced at places. This is caused by the prints having been wetted on the surface by the mountant, and allowed to dry in that state. After mounting I always run the print over with a sponge just damp, and in that way secure equal moisture on the surface and even drying.

Chalk Red or Bartolozzi Effects.

This, I think, brings me to the end of the ordinary toning process. It has taken a lot of telling, but in practice ten minutes will do the toning and washing for a print in warm brown. I have now to speak of the chalk-red or Bartolozzi print color. To produce this the procedure is very little different. Development should be carried further so that the faintest details are decidedly out, as the strength of the picture will depend altogether on the color deposit, the unchanged silver being removed afterwards. For this color it is advisable, also, to produce pluckier prints than are used in the brown process, as, if too soft, your deepest shadows are apt to look weak after the silver is removed. When this fully developed image is toned for a considerable time it will have attained a black-red appearance, as shown in the left-hand section of this print. This appearance will present itself in fifteen to twenty minutes, but it is desirable to let the action go on for an hour, as, at first, the color deposit if only on the surface, and if the unchanged silver underlying this be then removed the whole of the force in the shadows would be lost. When it is judged that the tone has penetrated the deepest shadows the print is washed in running water for five minutes, or till the acid is removed, and is then immersed in a bath of Farmer's reducer. All the black heaviness dissolves out, and you have left something approaching a red chalk drawing. The hypo is now to be got rid of, and to effect this as speedily as possible I again resort to peroxide of hydrogen. A couple of minutes' washing before immersion in this bath, and five minutes after washing, will have freed the paper from the hypo. The immersion should also be for five minutes. If the high lights now seem to want clearing continued washing will have the desired effect, or, if you are impatient, add a little alkali to the water, and it will reduce quickly enough. If you use washing soda for this, or any other alkali in crystals, see that these are all dissolved before immersing the print, as, if any crystals touch the paper, the color will be removed from the spot in contact almost at once.

For a dark-green color, which would give something of a night effect to a seascape, it is only necessary to place a toned print in a very weak solution of perchloride of iron and hydrochloric acid ; but this I call playing pranks. I must warn you that it is rather fluky, and you may get a bright-blue instead of a green

I will not say more upon the chemical action involved in the uranium toning process than that a theory has been put forward by Mr. Levy, of the Photographic Club, in which he suggests that the ferricyanide of potassium combines with the silver image and forms a ferrocyanide of silver, with which the uranium nitrate enters into combination. I am not aware whether chemists accept this as the correct explanation, and no doubt the subject may still be forming the subject of investigation. It

has, however, been proved by Mr. Haddon that there is no loss of silver when the toned image seems to have been washed away by long subjection to running water. Although a bright red-toned print—one, of course, from which the silver *has not been removed* by Farmer's reducer—may be washed out to a mere ghost. This ghost may be revivified by conversion into bromide of silver, exposure to light, and redevelopment, and may be again toned to any desired color.

Mr. Haddon's Suggestions.

I have now described the process as I am in the habit of working it myself, and at this stage I wish to express my thanks to Mr. Haddon, of the London and Provincial Association, for his recent communication as to a means of improving the working of the uranium toning process. This is the first outcome of the appeal I made for help more than a year ago, for although many have tried to put forward other methods of toning bromides, Mr. Haddon has been the only one to make any practical suggestion for the improvement of the uranium method. The suggestions made by that gentleman were three: First, that by using an acidulated washing water the loss of tone in clearing the print would be done away with. Second, that by increasing the quantity of uranium nitrate to about five times the amount of the ferricyanide, the precipitate of ferrocyanide of uranium in the toning bath would be avoided, and a saving of precious metal effected; and also that the bath in that condition would be of good keeping quality. The third suggestion had reference only to the chalk-red process. To avoid the reduction which may occur in removing the hypo used in that process, he suggests that the silver can be removed from the print by the substitution of sulphocyanide of ammonium and ferricyanide of potassium in place of Farmer's reducer.

To deal with the last suggestion first, I may say at once that I have not yet tried it. But it occurs to my mind that the sulphocyanide will have to be removed from the paper in the same way as the hypo, or if it be left without more than a few minutes' washing, I would like some one who knows to say whether its retention in the print would not set up some combination which might endanger the print. As regards this suggestion, I would say that the difficulty it is designed to obviate is more imaginary than real, as those who will practically work the process will immediately see. The red image, from which the silver has been removed by Farmer's reducer, is sufficiently hard to wash out as to be very little affected by the amount of washing required to be done in the way I suggest. The full development of the image, in the first place, is not, as suggested by Mr. Haddon, for the purpose of allowing for washing out, but for the purpose of getting decided strength in the weakest detail, as they, when toned and the silver removed, would naturally look weaker in a faint red than they do in the original gray. By using the peroxide of hydrogen the hypo is so quickly eliminated or decomposed that there is little perceptible reduction in tone, and I have not found any one to positively state that the prints will suffer from the hypo eliminator if they have five minutes' washing in running water after they are removed from it.

Comparative Experiments.

Now, as regards Mr. Haddon's suggestion to wash after toning in water acidulated with acetic acid, with a view to removing the yellow stain without reduction of the tone, I have made a comparative experiment to illustrate to you the advantage or otherwise of this suggestion. I submit to you a print which has been toned to a red-brown color, and from which section "A" was cut off and thrown into running water, and there remained for nine minutes, and then blotted off and dried. Sections "B" and "C" were washed in thirteen changes of acidulated water over a period of sixty minutes. Section "B" was then cut off, blotted, and dried, while section "C" was thrown into running water and washed for seven minutes, and then dried.

It will be observed that the yellow stain is not removed from "B," although it has been treated with constant changes of acidulated water for an hour, and that it is only when it has received a further washing of the usual time in plain water that the print is cleared. In the gaslight this is not so apparent as it is in daylight, but you can, I think, clearly see the marked difference between "B" and "C."

Now, on comparison of "B" and "A," it will be observed that "B," which was treated with acid, has decidedly suffered less loss of tone than the section treated only with plain water. This latter, however, I may say, received four minutes more washing than was absolutely necessary to remove the yellow stain, while "B" was removed from the water the moment the stain was sufficiently removed to make the high lights match with those of "A." On the whole, I admit an advantage for this suggestion; but it is so unimportant, and obtained at the expense of an extra expenditure of time, that, in my own practice, I shall probably content myself with the old method.

And now I come to the suggested alteration in the proportions of the constituents of the toning bath. This alteration is, no doubt, based on sound theory, and it is too soon yet to say whether, in actual practice, it will not result in some improvement. My experiments, however, so far, do not give me such satisfaction as I anticipated from Mr. Haddon's suggestion. As you will observe from the bottle of solution I submit to you, and which has been made up according to the formula given, and used to tone four half-plate prints, there is not that absence of precipitate which was anticipated. There is, in fact, more precipitate than in a bath of the old proportions which has done nearly double the work. It may be urged, of course, that the one contained ten times more uranium at first than the other; but it was with a view to retaining that uranium in solution that this great increase was made. If the alteration be advocated on the score of economy, I think it is very doubtful if the aspirations of its proposer will be realized. The altered bath costs ten times more than the one made by my formula, and, even at that, is not a very ruinous affair, but when it is considered that an eight ounce toning bath, made by my formula, will cost for uranium nitrate (2*s.* 4*d.* per ounce) exactly one farthing, it is scarcely worth while saving it after it has been used for a few prints. I should think it will be less trouble to put it down the sink. As to the keeping quality of the bath (Mr. Haddon's) my experiments are satisfactory. After keeping for eleven days, I toned a print (the fourth) in quite as short a time as was required for the third. The precipitate, however, further increased, and it is questionable if it will keep sufficiently long in use as to do the same proportion of work as could be done by ten fresh baths of the original composition. I have tried a bath of the altered proportions, diluted to the same strength of uranium as my formula; but, although it tones at first exactly the same as mine, it rapidly deteriorates. I have put on the blackboard a table showing the comparative time taken to tone six prints in succession at intervals of half an hour in each of the two baths, from which it will be seen that, whereas the first prints were toned to a standard color in five minutes, the sixth prints took respectively twelve and thirty-two minutes.

Table of Results.

These two baths were again tried eight hours later, when the old bath toned its print to the standard tint in eight minutes; whilst the new diluted bath was found to be practically inert. Upon adding, however, sufficient ferricyanide to bring it up to the same composition as my formula, it toned a print in five minutes, and the amount of precipitate, as you will observe, is very slight indeed. No doubt it will do its work all right still, after a further lapse of forty-eight hours. We will probably try it when giving the little bit of demonstration with which I now propose to conclude this paper.

The toning bath made by the original formula, and used for toning ten half-plate prints, was tried again, after a lapse of eleven days, and found to be practically useless. It took thirty minutes to produce the standard tint, but, as I have said, when it has done a fair amount of work, we can afford to throw it away.

The following table will show the relative rate of working of the three baths. The time taken to tone a print to a standard color is stated in minutes:

Uranium Nitrate....	5 grains.	0·5 grain.	0·5 grain.
Potassium Ferricyanide.....	1 grain	0·5 grain.	0·1 grain.
Glacial Acetic Acid..	30 minims.	10·0 minims.	10·0 minims.
Water.....	1 ounce.	1 ounce.	1 ounce.
	Mins.	Mins.	Mins.
Print No. 1.....	2½	5	5
" " 2.....	3½	5	5
" " 3.....	5	8	13
" " 4 Eleven days later	5		
" " 4.....	..	10	15
" " 5	..	10	20
" " 6..... ...	..	12	32
" " 7 Eight hours later	..	8	Bath exhausted.*

* On the addition to this bath of a quarter of a grain of ferricyanide of potassium per ounce of solution, a print is toned five minutes. This, no doubt, proves the value of one of Mr. Haddon's suggestions, and that by the addition of the ferricyanide little by little the last trace of uranium in the bath may probably be utilized.

J. Weir Brown.

Notes and News.

Hannah Flanigan, photographer, of Woodstock, has been succeeded by Miss Julia H. Elton.

R. F. Godfrey, photographer, of Arctic, R. I., recently sustained a loss of $1,000 by fire, $850 of which was covered by insurance.

E. D. Haley, photographer, of Decatur, Ind., is reported to have sold out.

Sanford E. Star, of Danbury, Conn., has moved to New York.

The New York Camera Club gave an interesting exhibition of lantern slides, the work of members, at the rooms of the club, Friday evening, April 1st.

The Portrait, by Miss Martin, which embellished our magazine last week, has elicited a great deal of favorable comment among our readers and others who have seen it. We shall have other pictures in this series of photographs, which were exhibited at the Vienna exhibition, to show our readers in the near future.

The Photographic Section of the Manhattan Chapter of the Agassiz Association will hold its second annual photographic exhibition from May 2d to May 7th. The first prize, for the best landscape on exhibition, will be a year's subscription to The Photographic Times. An artistic catalogue which will also serve as a souvenir of the exhibition, will be issued by the Section on this occasion.

Messrs. Frederick E. Ives and W. N. Jennings gave an illustrated lecture under the auspices of the Photographic Society of Philadelphia, in Association Hall, Tuesday evening, April 5th. The subject of the lecture was entitled "From Philadelphia to the Grand Cañon of the Yellowstone National Park," and many of the slides illustrating it were from Mr. Ives' photographs in the colors of nature.

THE PHOTOGRAPHIC ART.

A bit of Nature, 'tis but a span.
Yet never yet has the the hand of man
Unaided—with pencil, brush, or pen,
Depicted it so perfect as when
The sun has given its brilliant rays,
And Science aided in her ways,
With skill and thought, together brought
All that is thus inwrought.

The sloping hillside, the wooded glen,
The rocky ledge, the meadow fen,
The babbling brook, the deep blue sea,
The blossoming lawn, the sheltering tree,
The fields where harvesters gather the grain,
The roadside hedge, the heathery plain,
The curving reach of the sandy beach,
All have a charm, a lesson to teach.

Lessons of art, of culture, of pleasure
A souvenir one may carefully treasure,
Remembrance of days of life at its best,
Recalling thoughts of a day of rest,
Of work, of pleasant recreation,
Of thought and fancy in their creation,
For in every view, that to Nature is true,
There are lessons that ever are new.

J. R. Smith.

Record of Photographic Patents.

471,584. Photographic Camera. George Whitney, Winnetka, Ill.

471,585. Photographic Camera. George Whitney, Winnetka, Ill.

471,586. Package of Photographic Films. George Whitney, Winnetka, Ill.

471,675. Photographic Shutter. Garrett W. Low and William Shakespeare, Jr., Kalamazoo, Mich.

471,715. Magazine for Cameras. Michael B. Feeney, New York City.

Queries and Answers.

235 Geo. G. Cantwell, Colorado: (1) Will you please give me a *good* formula for eikonogen developer in *one* solution, to be used for instantaneous exposures, one that will keep for at least six weeks or more, as I don't expose more than two dozen plates in a month. I am using pyro but it gets brown and plays out in a short time although it is in an air-tight bottle? (2) Will you also give the formula for a good rapid *ferrous oxalate* developer that has good keeping qualities, to be used for instantaneous exposures. I will try both. I want to get hold of a developer that I can handle and intend to stick to it, and will rely on you to help me through?

235 *Answer.*—(1) Dissolve in 32 ounces of hot water 2 ounces of neutral sulphite of sodium in crystals, and afterwards 1 ounce of eikonogen; finally, 1 ounce of potassium carbonate, filter, and fill up in bottles.

For instantaneously exposed plates take of this solution ½ ounce and 1½ ounce of water. Restrain with a 10 per cent. solution of bromide of potassium.

For your purposes we advise to fill the solution into 2-ounce bottles, or of any size containing just as much as you will use for one day's work. Our eikonogen developer will keep for an indefinite time if air is excluded from it. But were you to leave a bottle half full for any length of time, the oxygen of the supernatant air would oxidize the eikonogen within a short time, and color it brown as well as you have experienced with a mixed pyro developer.

We doubt not our eikonogen developer in one solution will please you.

(2) Ferrous-oxalate developer for gelatine dry-plates:

A.

Neutral oxalate potassium	16 ounces
Distilled water	3 pints

Acidulate with oxalic acid.

B.

Proto-sulphate of iron, cryst.	4 ounces
Distilled water	12 ounces
Sulphuric acid	a few drops

C.

Bromide of potassium	1 drachm
Distilled water	9 drachms

D.

Hyposulphite of soda	2 drachms
Distilled water	1 quart

Mix immediately before use 3 ounces of A with 1 ounce of B, and develop. Restrain with a few drops of C.

For over-exposure take less of the iron solution, and add gradually in small portions, as required. To give the negative body use C.

To make soft negatives with fine details, take of

A	2½ ounces
B	½ ounce
C	minims
D	6 minims

Plates giving with ordinary developer hard and glassy negatives, give with this modification very satisfactory results.

When mixing developer, B must be poured into A, not *vice versa*. It is not practical to add more iron solution than prescribed, as the oxalate is capable to keep but a certain amount of iron in solution.

THE PHOTOGRAPHIC TIMES.

AN ILLUSTRATED WEEKLY JOURNAL DEVOTED TO THE ART, SCIENCE AND ADVANCEMENT OF PHOTOGRAPHY.

Issued every Friday.

W. I. LINCOLN ADAMS, Editor.

SUBSCRIPTION RATES.

Weekly (illustrated) for one year $5 00
" " " six months 2 50
" " one month's trial 50

Single copy, 15 cents.

The Weekly PHOTOGRAPHIC TIMES and Semi-Monthly *Philadelphia Photographer* to one address for one year, $9.00.

On Foreign Subscriptions $1 00 is added to pay postage.

Remit by Express Money Order, Draft, P. O. Order, or Registered Letter.

Subscriptions to THE PHOTOGRAPHIC TIMES received by all dealers in photographic materials in this and foreign countries, also by the American News Co. and all its branches.

ADVERTISING RATES.

Size of advertising pages, 6¼x9¼ inches; outside size, 8½x11¾ inches.

One page, each insertion $20 00
Half page, per insertion 10 00
Quarter page, per insertion 5 00
Eighth " " 2 50
Business Notices, not displayed, per line 20

Discount for term contracts.

Copy for advertisements must be received at office one week in advance of the day of publication. Advertisers receive a copy of the journal free, to certify the correctness of the insertion.

All literary contributions, correspondence, "Queries," etc., should be addressed to THE EDITOR; all advertising matter to the Publishers,

THE PHOTOGRAPHIC TIMES PUBLISHING ASSOCIATION,
423 Broome Street, New York.

Commercial Intelligence.

"We have always found your journal an excellent medium to advertise in; like the American Annual, it should be more patronized by the dealers. We think we can say we have received more inquiries from our notice in your publication than in any others we advertise in. This is not taffy."

W. P. BUCHANAN,
Successor to Buchanan, Bromley & Co.
Philadelphia, Pa.

"PERFECTLY SATISFACTORY."

The Scovill & Adams Co.,
New York City.

Gentlemen:--The 11x14 Boston Imperial Boxes have come to hand. They are perfectly satisfactory as usual * * * * * *

Very truly yours,
O. H. PECK.

Minneapolis,
March 23d, 1892.

"It Stands at the Head."—Engraving and photography have come to be twin arts. Admiration for one, induces a like sentiment for the other and one of the most welcome exchanges that comes to our table is THE PHOTOGRAPHIC TIMES. For the enthusiastic amateur or the professional, it is full of valuable suggestions to the art of photography, while for those who love the beautiful we commend its handsome engravurcs, one of which prefaces its pages each week. It stands at the head of the photographic journals of the country.—*Illustrated Pacific States* for March.

The "M. & V." Lenses, manufactured by Mathesius & Vallosio Optical Co., of New York, are very highly spoken of. These lenses are manufactured from scientifically prepared glass, insuring the greatest rapidity of action with the finest effects in negatives. They are adapted for instantaneous work, or wide-angle work, interiors, architectural work, maps, etc., and for professional work. They are for sale by The Scovill & Adams Co., where they may be seen, and from whom full particulars may be obtained.

The Bausch & Lomb Co., of Syracuse, are about to erect extensive works for the manufacture of their line of lenses and optical instruments. The buildings are to cost $50,000, the largest one being 185 feet x 80 x 53 x 162, and will include five stories. The buildings will be constructed in accordance with the most approved methods, and will be commenced early in April.

A new edition of The Scovill & Adams Co.'s Catalogue of Photographic Publications has been issued, containing a revised list of the forty books composing The Scovill Photographic Series, with descriptions and prices, as well as several additional publications not included in this series. The catalogue is improved in arrangement and style of printing, both inside and out.

"I feel rather inclined to praise the 'Triad,' as a nice little camera."—ALFRED J. THOMPSON, Laboratory of Thos. A. Edison, Orange, N. J.

We note that the excellent portrait of Walt Whitman, the "Good Gray Poet," who recently died in Camden, N. J., which embellished THE PHOTOGRAPHIC TIMES, of a few weeks ago, has been copied in a number of the daily papers, but, as usual, without any credit being given to the source from which the portrait was obtained.

Significant.—The fact that a photographic organization offers a subscription to THE PHOTOGRAPHIC TIMES, as the first prize for the best landscape at its annual exhibition, would seem to indicate that our magazine is valued as an instructor in photographic art matters. (see note under "Notes and News," regarding annual exhibition of the photographic section of the Manhattan Chapter of the Agassiz).

Sometimes THE PHOTOGRAPHIC TIMES fails to reach its destination. Why, we cannot say. Perhaps the slip containing the address becomes displaced. Possibly, even, the frontispiece proves too attractive to the carrier. Or, may be, it never reaches the carrier, the postmaster's well grounded principles of honesty not being sufficient proof against the alluring qualities of the photogravure. At all events, we occasionally hear that "THE PHOTOGRAPHIC TIMES of ——— date has not arrived." Yesterday such a word came from the librarian of a prominent public library: "Please send another copy at once," he writes, "*as there are several people waiting to read it.*"

Fortunate.—"I consider myself fortunate in possessing a complete set of volumes of so valuable a publication as THE PHOTOGRAPHIC TIMES," writes A. B. Stebbins, of Canisteo, N. Y., who has a complete set of our magazine.

Business Notices.

RAPID RECTILINEAR LENSES AT COST.—4 x 5, $5; 5x7, $12; 5x8, $7; 6½x8½, $8; 8x10, $12; 10x12, $18; 11x14, $24. Write for price list.
W. P. BUCHANAN, Importer, Philadelphia.

BACK NUMBERS OF SUN AND SHADE, including Nos. 3, 10, 11 and later issues, in perfect condition, 25 cents each. Regular price is 40 cents, and the earlier numbers are at a premium. THE PHOTOGRAPHIC TIMES PUBLISHING ASSOCIATION.

FOR SALE.—4x5 Waterbury Detective, and 5x7 Henry Clay Cameras.
H. COUTANT, 15 Wall St., New York City.

FOR SALE.—A Photographic Gallery with apparatus, materials, etc, complete, in a small town where there is no opposition; also the neat cottage adjoining with one quarter acre cultivated. All for $500, if sold at once. For further particulars address MRS. C. F. HALIFAX, St. Andrew's Bay, West Florida.

FELT BACKGROUNDS, $1.50 per yard; a 6 ft. x 6 ft. ground only $3, by mail $3.35.
THE SCOVILL & ADAMS CO.

PHOTOGRAPHIC BROKERAGE.—Established especially to furnish carefully selected outfits of any make or grade to those living at a distance. Address
C. M. BROCKWAY, 33 Worth St., New York.

C. M. Brockway, New York.
Dear Sir:—"The lens you sent me is a fine one and all the goods received are excellent. I must thank you for making such good selections for me."
WALTER ARNOLD, Ilion, N. Y.

FOR THE NEWEST AND BEST GOODS MADE by the American Optical Co., Anthony & Co., Eastman Co., Rochester Optical Co., Blair Camera Co., or Gennert & Co., send to
C. M. BROCKWAY, 33 Worth St., New York.

THE UNDERSIGNED has a few 6x5 Dallmeyer Rapid Rectilinear Lenses which he will sell for 20 per cent from list prices. These lenses are a late importation and are all warranted. Address "TOURIST,"
care The Scovill & Adams Co.

THE FINEST Platinotype Solar Enlargements and contact prints, in black and sepia, are made by
THE PLATINOTYPE CO.,
39 South 10th St., Philadelphia.
Send for price lists.

WANTED.—Local and traveling agents to sell Photographers' Paste, Mucilage and Gums to the trade. Liberal commissions. THE ARABOL MFG. CO.,
13 Gold Street, New York.

A MATCHED PAIR OF ORIGINAL SINGLE Dallmeyer Lenses for stereoscopic work for sale at a bargain—$25 C.O.D; or remit the amount in check, money order or postal note. "MATCHED PAIR,"
Care of The Photographic Times.

LANTERN-SLIDES AND HOW TO MAKE THEM, by A. R. Dresser.—A new book, very complete and thoroughly practical. Only 25 cents. Sent postpaid on receipt of price by THE SCOVILL & ADAMS CO.

A SPLENDID OPPORTUNITY FOR A FIRST-CLASS PHOTOGRAPHER.—In the large and beautiful city of Guadalajara, with 120,000 inhabitants—the second city in Mexico. For sale or to rent—after having made its owner a fortune—a photographic gallery beautifully situated in the centre of the city, completely furnished with all modern appliances. To be sold at cost price, $4,000, or for rent at $150 per month, including living apartments. First-class custom, on the basis of $12 for Imperials. For further particulars, address Sr. Lic. J. MIGUEL G. HERMOSILLO, Apartado 12, Guadalajara; or O. DE LA MORA, 2da San Francisco, 4, Fotógrafo, Mexico City.

WANTED.—Choice stereoscopic negatives from all parts of the world. Address F. F. BRAILLARD, Jr.,
423 Broome St., New York.

A NEW GUNDLACH LENS, covering a 5 x 8 plate, sharp to the edges, for sale cheap. Regular price $24. Will send C.O.D., subject to examination, for $18.
Address C.O.D., care The Photographic Times.

THE finest-fitted Dark-Rooms in the United States are open for the accommodation of Amateurs, at 122 W. 36th Street. DARLING, Photographer.

THE ELDORADO BENCH AND WALL COMBINATION makes eight different combinations, every one of which is effective and artistic. Just introduced by THE SCOVILL & ADAMS CO. Price $20.00.

"THE PHOTOGRAPHERS' BOOK OF PRACTICAL FORMULÆ."—In order to make way for the second edition of this popular book we make the following prices on those now in stock: Paper covers, 30 cents each; cloth, 60 cents each. Never before has a book of such great value been offered for so little money.
R. H. MORAN,
396 Broome Street, New York.

SEND FOR LIST of new "M. & V." Lenses to THE SCOVILL & ADAMS CO.

A SURE WAY TO PREVENT BLISTERS—Use Haworth's Sensitized Paper. It won't blister. Spalding has it, so have Obrig Camera Co., and Z. T. Benson.
JOHN HAWORTH, Manufacturer, Phila.

WANTED.—Vols. 1, 2, 4, 5, 7, 8, 10, 12, 13, 17, 18 and 19 of The Photographic Times, bound or unbound. THE PHOTOGRAPHIC TIMES PUBLISHING ASSOCIATION.

A BARGAIN.—A No. 6 Gray's Periscope Lens in first-class condition. List price, $22.00. Will sell for $15.00. Spot cash. Address LENS BARGAIN, care The Photographic Times.

NO FUMING, NO BLISTERS.—Experiment with all the "papers" advertised, and learn. But when you want to make choice, spotless prints use Wissahickon Sensitized Albumen Paper. Tone it in compound bath and squeegee on ferro plate, if you like. Send 2 cent stamp for 4x5 sample to JOHN HAWORTH,
641 Arch Street, Philadelphia.

LANGILL. 10 East 14th Street, makes all kinds of outdoor negatives. Portrait photographers will do well to consult him when such is required. First prize for Architectural photographs, P. A. of A.

PHOTOGRAPH GALLERY FOR SALE OR TO RENT.—City 15,000; rent $10 per month; established three years; price, $700; only sold as the owner has to hire a man to run it. Cabinets $3.50 per dozen; ten backgrounds. A. E. F., 5 Essex Street,
Newburyport, Mass.

WANTED.—A second-hand 18 x 22 Camera and Lens, in good condition. Address
A. H. BROMLEY, Jr. & CO.,
1520 Market St., Philadelphia.

FLASH-LIGHTS AND HOW TO TAKE THEM! A complete treatise on Flash-Light work. Fully illustrated by Louis Clarence Bennett. Price, 50 cents, Order a copy now from THE SCOVILL & ADAMS CO.

THE PLATINOTYPE.

(PATENTED.)

Photographers can increase their business during the nolidays by advocating the Platinotype.

Send 30 cents for a specimen print, portrait or landscape, on our new heavy India Tint Mounts.

WILLIS & CLEMENTS, Patentees,
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PARA-AMIDOPHENOL HYDROCHLORATE.
THE DEVELOPING AGENT OF THE FUTURE.

With para-amidophenol there is no staining of the film, as with eikonogen and hydrochinon when development is prolonged, absolute transparency and opacity is secured, and the time of exposure is reduced about 30 per cent. without injury to half-tones and middle-tints.

FORMULA FOR DEVELOPER.

Para-amidophenol (pure)	100 grains
Sodium sulphite (crystals)	3 ounces
Potassium carbonate	1½ ounces
Water	32 ounces

FOR USE.—Take 1 ounce of the above solution and from 2 to 4 ounces of water, according to the length of exposure.

The stronger the solution the greater the intensity of the resulting negative; the more diluted the solution the greater softness and more detail.

PURE PARA-AMIDOPHENOL HYDROCHLORATE,
IN ONE-HALF OUNCE BOTTLES,
$1 per bottle
THE SCOVILL & ADAMS CO.

Employment Offered and Wanted.

(These advertisements are inserted free of cost to photographers out of employment, in order to help them find situations.)

SITUATIONS OFFERED.

Permanent and good paying position for a first class printer who can retouch and has some knowledge of operating; also young lady to attend desk, retouch, and assist in spotting and mounting. Pierson Brothers, 84 Broad St., Elizabeth, N. J.

SITUATIONS WANTED.

By a lady, position in photo studio; fully understands studio work. Correspondence solicited. Address "Camellia," General Delivery, Lowell, Mass.

First-class printer and toner of experience and ability, capable of taking charge of printing department, desires position; highest references and samples of work. Address Box 33, No. 152 Sixth Ave., N. Y.

Well-experienced operator, retoucher, printer and toner is open for an engagement, or would undertake to run a gallery on shares. Lawrence Carroll, 58 North 3d Street, Brooklyn, N. Y.

Printer wishes a situation at once; prints on albumen, mat surface, bromide, aristo or platinum paper; best of references. Henry Chase, 123 Forsyth Street, New York.

By young man as operator or general assistant; has an experience of three years, and first-class references. Address J. A. Sheetz, Canal Dover, Ohio.

NOT A LOTTERY SCHEME.

$100.00 Cash in Prizes,

GIVEN BY

The Photo American.

If you will send **TEN CENTS** in coin or stamps you will learn all the particulars. It will also entitle you to compete, besides make you acquainted with the **Cheapest** and **Best**

Illustrated Photographic Monthly

published.

$1.00 PER YEAR.

THE PHOTOGRAPHIC TIMES and PHOTO AMERICAN together for $5 per year.

C. H. LOEBER,
111 Nassau Street, N.Y.

Be sure to mention this paper.

THE CHAUTAUQUA

School of Photography.

The local class of 1891-'92 opened Monday, October 5th. Term closes the second week of May, 1892.

Class hours from 9 to 12 every Monday and Saturday.

The skylight room and laboratory used by these classes are on the seventh floor of No. 423 Broome Street, New York. (Take elevator.)

Cost of Course of Ten Lessons, including entrance fee, text book, and materials used in demonstration, $7.50.

Special Single Lessons, per hour, each, $1.

Cost of Ten Lessons in Portraiture, $10.

After completing the regular course, students are admitted to examination, and if passed, are awarded a Chautauqua diploma.

Students are admitted to the corresponding class at any time. Tuition fee, including printed lessons, subscription to the official organ of the School, and text book, $7.

For particulars apply to

PROF. CHARLES EHRMANN,
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Solid Trains between New York and Chicago

VIA CHAUTAUQUA LAKE OR NIAGARA FALLS.

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The Delaware Division of the "Erie," between Port Jervis and Susquehanna, is a paradise for Amateur Photographers.

D. I. ROBERTS, Gen'l Passenger Agent.

CONTINUOUS BACKGROUNDS

Shown in Photographs with Subjects, in our new Sample Book.

Also the best and most complete line of accessories made.

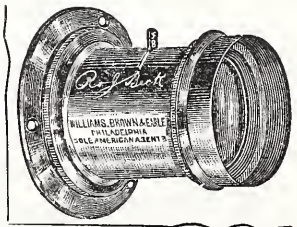
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BLUE PAPER.

A *good* article in this line is always hard to find. The *package* paper is variable and not to be relied upon. The motive of this little "Ad." is to tell you of our *special* Blue Paper. It is made fresh every day, on imported paper; is 50 per cent. cheaper than other papers, and withal is the best. Per yard (27 inches wide), cut to any size, 25c. Send 5c. for sample. THE OBRIG CAMERA CO.,
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If you are thinking of Purchasing a PHOTOGRAPHIC CAMERA do not fail to write us for prices. If you wish to get SUPERB RESULTS get a

BECK LENS



Mr. JNO. C. HEMMENT, Photographer to *Frank Leslie's*, states: "It is the only lens which will do my work."

WILLIAMS, BROWN & EARLE,

PHOTOGRAPHIC SUPPLIES AND PRINTING,

Northeast corner 10th and Chestnut Sts., Philadelphia.

Sole American Agents for the Beck Lens.

Correspondence Solicited.

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WE HAVE THEM!! $6.00 TO $25.00.

They can be loaded in the *daylight*, and we give full and careful personal instructions gratis. We develop, print and mount in albums at Eastman's prices. Only *first-class* work turned out. THE OBRIG CAMERA CO.
163 Broadway, New York.

W. F. ASHE,

Artist and Designer.

A SPECIAL lot of

BACKGROUNDS.

8 feet high at $1.00 per running foot.

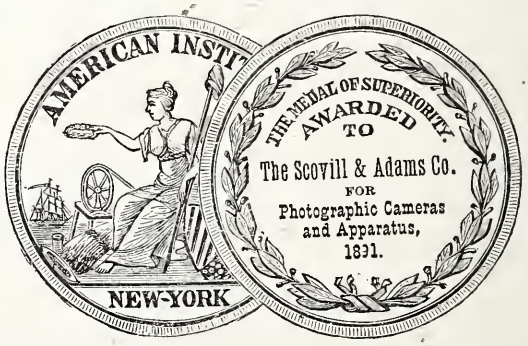
New Profile Accessories of Columns Cabinets, Cottages, etc., etc., etc.

76 East 9th St., N. Y., U. S. A.
Three Doors East of Broadway.

S. P. C. EIKOQUINOL DEVELOPER.—This "ne plus ultra" developer for timed and instantaneous exposures, lantern slides and all other kinds of transparencies, photo-mechanical work and bromide paper prints is now in stock and for sale at 35 cents per bottle of 8 ounces. No other developer is now used by the members of Chautauqua School of Photography; no other has attained to equally fine results.

THE SCOVILL & ADAMS CO.,
423 Broome Street, New York.

The Special Bronze Medal of Superiority, awarded by the American Institute to The Scovill & Adams Co.



for photographic cameras and apparatus, 1891.

PORTE-FEUILLE CARDS.

The cards for these Albums may be quickly and securely attached to the guards after the prints are mounted and burnished.

Price-list, including 25 sheets of Collins' best quality White Cards:

No. 2, 10x12 for 6½x 8½ Photographs.....$2 00
" 3, 11x14 for 8 x10 " 2 25

Price-list, including 25 sheets of Collins' White Muslin-Back Cards:

No. 5, 10x12 for 6½x 8½ Photographs.....$2 00
" 6, 11x14 for 8 x10 " 2 25

THE SCOVILL & ADAMS CO.,
423 Broome Street, New York.

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—OF—

THE PHOTOGRAPHIC TIMES

ARE VERY SCARCE.

We have but a few copies of a few years, which we can supply those who desire to complete their sets, as follows:

Vols. 3, 6, 9, 11 and 14,

bound, with advertisements, in red cloth, uniform with other volumes, at three dollars ($3) each.

Vol. 15,	**$4.00**
Vol. 16 (in two parts),	**7.00**
Vol. 20 (in two parts),	**7.00**
Vol. 20 (in one volume).	**6.00**

Other volumes are at a premium. We cannot supply them, *at any price*, as we have none left in stock and do not know where we can get any.

The above prices are subject to change at any time.

Order at once if you want them at these prices.

THE PHOTOGRAPHIC TIMES PUBLISHING ASSOCIATION,
423 BROOME STREET,
New York City.

Photographic Studies.

SECOND EDITION.

A Collection of Photogravures from the Best Representative Photographic Negatives by Leading Photographic Artists.

THE COLLECTION INCLUDES:

"Dawn and Sunset"..... H. P. Robinson
"Childhood"..... H. McMichael
"As Age Steals On"..... J. F. Ryder
"A Portrait Study"..... B. J. Falk
"Solid Comfort"..... John E. Dumont
"Ophelia"..... H. P. Robinson
"No Barrier"..... F. A. Jackson
"El Capitan"..... W. H. Jackson
"Still Waters"..... J. J. Montgomery
"Surf"..... James F. Cowee
"A Horse Race"..... George Barker
"Hi, Mister, may we have some Apples?"..... Geo. B. Wood

Printed on Japan Paper, Mounted on Boards. Size, 11x14, in Ornamental Portfolio.

Price, - - - - - $3.00.

Sent, Postpaid, on Receipt of Price, by

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—OF—

THE PHOTOGRAPHIC TIMES.

Volume XXI.

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They are substantially bound in neat red cloth, with and without advertisements.

With Advertisements, complete, in two parts, $7.00
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When the numbers of THE TIMES for the year are returned, *in good condition*, we allow full subscription price for them, charging only the cost of binding, viz., as follows:

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Without " in one volume, - - 1.00

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"A COMPLETE PHOTOGRAPHIC LIBRARY."

There are a limited number of volumes. Order at once if you want a bound volume.

THE PHOTOGRAPHIC TIMES PUBLISHING ASSOCIATION,
423 BROOME STREET,
New York City.

TWO USEFUL BOOKS.

LANTERN SLIDES

AND

HOW TO MAKE THEM.

BY A. R. DRESSER.

A practical little hand-book; very complete and instructive.

Price, in paper covers, only 25 cents.

FLASH-LIGHTS

AND

HOW TO MAKE THEM.

BY L. C. BENNETT.

THOROUGHLY PRACTICAL AND FULLY ILLUSTRATED.

Price, - - - - 50 cents.

Both books sent, post-paid, on receipt of price, by

THE SCOVILL & ADAMS CO.,
423 BROOME STREET, NEW YORK.

PHOTOGRAPHIC DIRECTORY.

A NEW CATALOGUE

Of PHOTOGRAPHIC GOODS, entirely complete and fully illustrated, will shortly be issued by

THE SCOVILL & ADAMS CO.

F. D. LANIER WALKER,

AMATEUR PHOTOGRAPHIC SUPPLIES.

18 John Street, New York City.

Successor to C. L. LITTLEWOOD & Co.

JOHN H. DALL,

PHOTOGRAPHIC SUPPLIES,

618 and 620 Clay Street,

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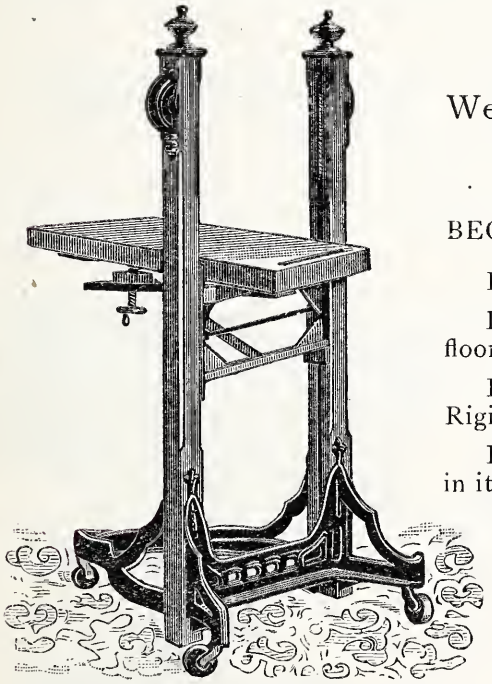
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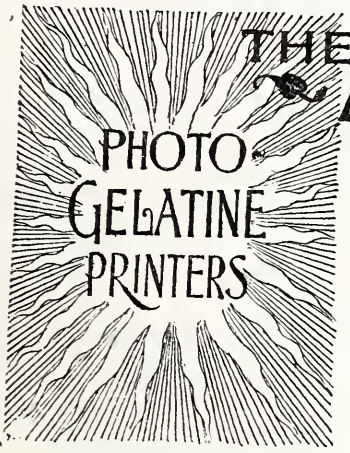
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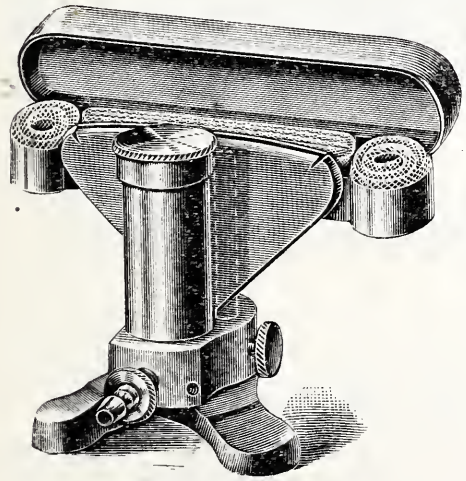
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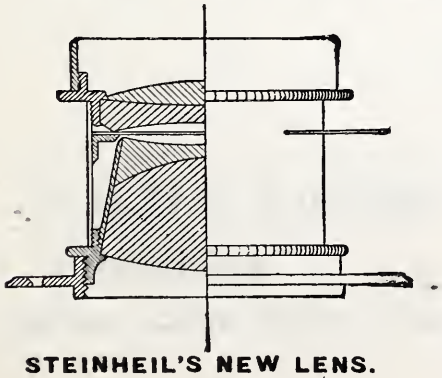
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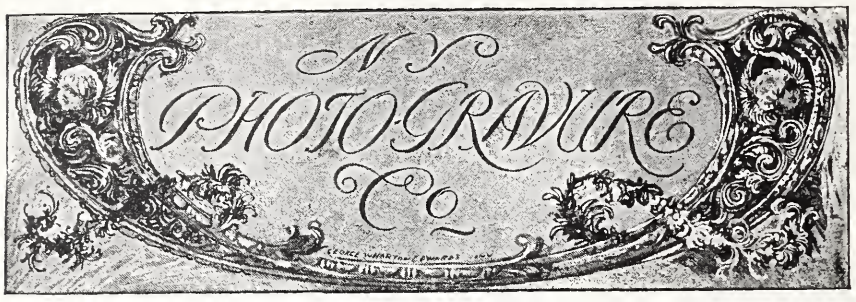
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Our processes are suitable for the reproduction of all classes of Art, Scientific and Commercial Work, the price varying according to the process used.

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Our Gallery is fitted to produce negatives of all sizes up to 24″ x 30″ by the best orthochromatic methods.

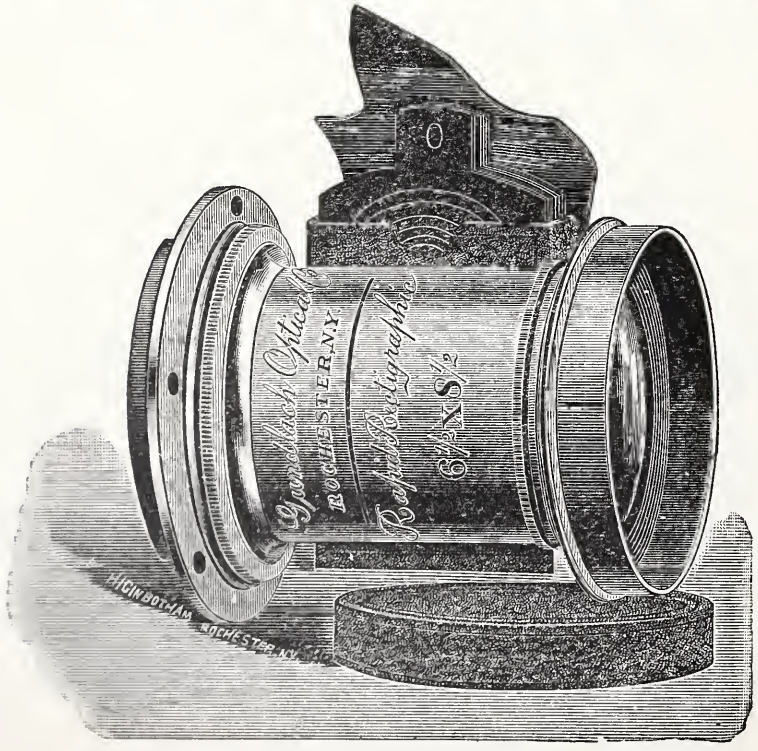
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TWO APLANATIC TRIPLETS

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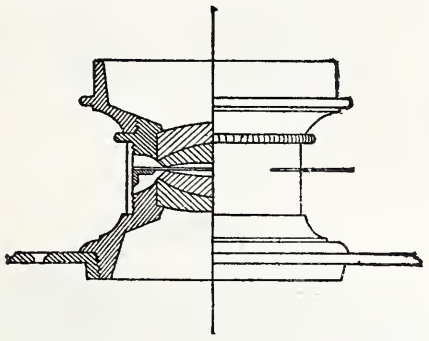
The Triplets are of different focal power, and, being perfectly aplanatic, they produce perfect pictures by themselves. Thus the new lenses actually consist of three objectives, which produce images differing in size as 2 to 3 to 4.

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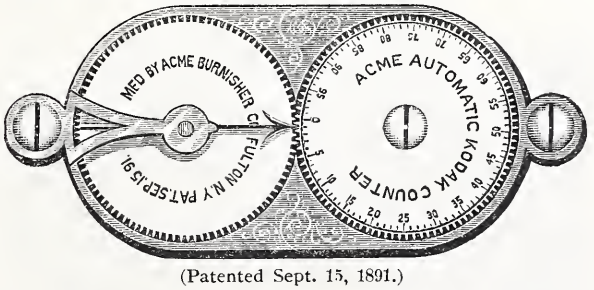
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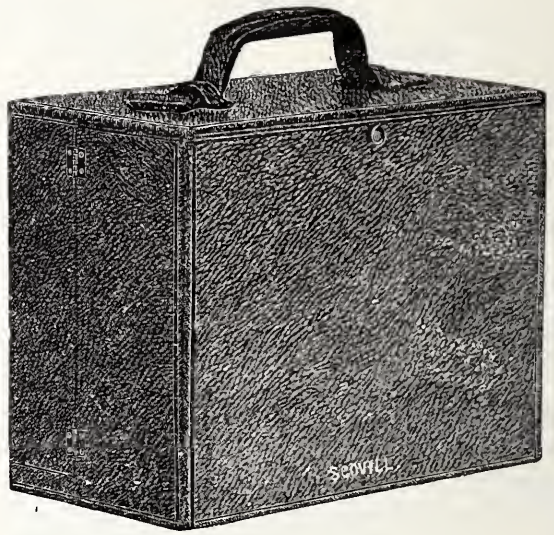
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THE 5 x 7 HENRY CLAY
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FOR TRIPOD AND HAND USE.



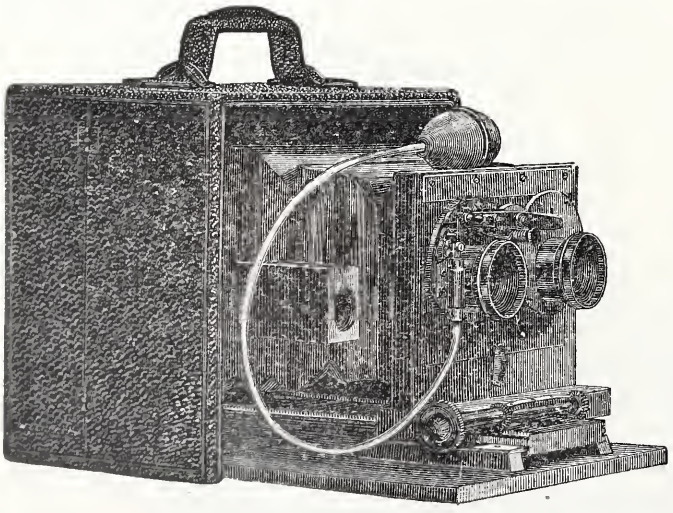
It is commonly known that of all pictures, those which are arranged to give the stereoscopic effect when viewed in a stereoscope, convey the true impression of perspective and solidity. It seems strange, indeed, that of the myriads of instantaneous pictures made, so few are taken with reference to their future use in connection with the stereoscope, *for it is only by that means that the idea of perspective and solidity can be conveyed.* We can only assign as the reason the present almost universal use of hand cameras, and that none of them have, up to this time, been arranged for stereoscopic pictures.

There is a much over-worked phrase—"the long felt want," but we think that just that, literally, will be met by the new hand camera which the American Optical Company have just finished.

The first illustration shows one of these cameras closed, and you will observe there is no external opening for finder, lens or anything to indicate that the leather-covered case contains the appliances which go to make up an instantaneous camera.

This camera measures eight inches high, nine inches long and five inches wide; its weight is about five pounds. It has a screw plate underneath, so that it may be used with a tripod. It has a door in the back of the case, and through that opening the image thrown by the lenses may be seen on the ground-glass focusing screen.

The second illustration shows the appearance of the camera when open. The pair of Optimus Lenses is fitted with a triplex stereoscopic shutter with pneumatic release, made by the Prosch Manufacturing Company.



The camera is furnished with a focusing scale and a reversible finder. Either half of the stereo. negatives when cut in two are of a size suitable for making lantern slides from.

This camera may also be used to take a single picture of the size of the ground-glass focusing screen (5x7 inches), either vertical or horizontal. In the former case the reversible finder comes into use. The septum which divides the camera inside is arranged so that it may be easily taken out, the stereo. lenses are mounted on a removable front, and an extra front is furnished on which may be placed any lens of not over seven and a half inches equivalent focus.

PRICE, with a pair of Optimus Lenses and Prosch Stereoscopic Shutter with Pneumatic Release, ... $75.00

This camera can also be made with vertical sliding and swing front. By means of the former the proportion of sky and foreground may be adjusted; the latter permits the taking of subjects which may be either above or below the level of the camera and still preserve the lines vertical.

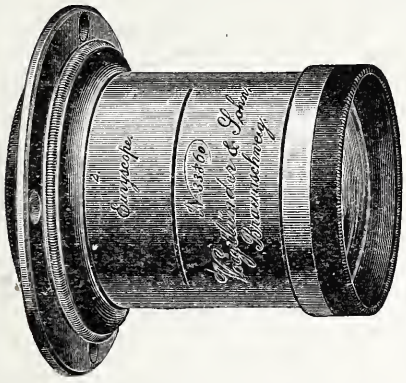
PRICE, with a pair of Optimus Lenses and Prosch Stereoscopic Shutter with Pneumatic Release, and with vertical sliding and swing front, . . $80.00

A 5x7 Roll Holder for Transparent Films can be furnished with either of the above forms of this camera for $15.00 additional. This addition would make the case about two inches wider and one-quarter inch higher.

THE SCOVILL & ADAMS CO., 423 Broome Street, New York.



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Please remember that in speed and every desirable optical quality no lenses yet constructed can rival

Voigtländer's Euryscope Lenses,

which are made in SEVEN different styles.

BENJ. FRENCH & CO.,

319 Washington St. BOSTON, MASS.

Revised price-List sent on application.

Correspondence solicited.

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Photographic Stockdealers,

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NEW ORTHO-PANACTINIC LENS, C. H. C. & CO. S ALBUMEN PAPER, THE SEMI-CENTENNIAL CAMERA STAND, THE ODIN FRITZ RE-TOUCHING MEDIUM.

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These are the only stamp portraits that are gummed and perforated, and being the exact size of ordinary U. S. postage stamps, photographers and others will find them an interesting novelty in advertising their business, as they can be mounted on business and visiting cards, letter-heads, etc.

We also make a size four times larger than the stamp pictures. Send for samples and prices, which will be furnished on application.

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Sole Agent,
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St. Louis, Mo.

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IS ENTIRELY FREE FROM POISONOUS INGREDIENTS.

THE GENUINE ARE IN SILVER WRAPPERS.

In order to demonstrate this, quantities have been eaten at various times. We have often pounded it in a mortar to show that it does not explode.

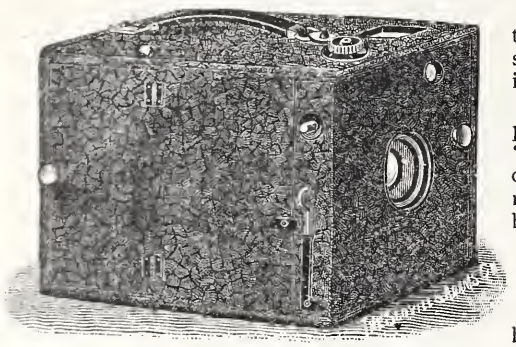
Price of Scovill Magnesium Compound.

In ounce bottles, with fuses.	$0 50
In quarter pound cans, with fuses....	1 40
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No. 1, put up in packages containing 6 cartridges.	$0 50	$6 00
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No. 2½, " " ..	1 20	13 00
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THE TRIAD CAMERAS.



When a discovery in photography is announced, it is claimed that the new article will displace everything then in use. These claims are seldom justified. There is generally found a place for the new article, if it has any value, and for the old as well.

For commercial purposes, for instance, such as the reproduction of photographs for illustration, it has been demonstrated that collodion "wet" plates are better than dry plates. For the use of the amateur, on the other hand, dry plates are much better than wet plates. Though many new supports have been tried, the sale of glass dry plates is larger now than ever before. Where only a few pictures are to be made on one day's outing it is likely that the experienced photographer will always use dry plates or cut films.

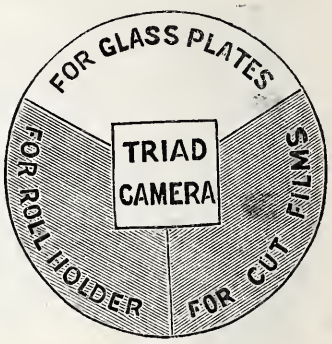
If he is going away for a summer vacation, or for a trip abroad, and expecting to make a large number of pictures, he will procure a roll-holder loaded with continuous films. This will save him the bother of developing while he is away from home, and of changing plates; but he cannot well know what results he has secured until he has exposed the entire roll and has had it developed.

For those who want to use celluloid instead of glass plates, and are not willing to trust to good luck in the exposure of the complete roll of film, we offer with the "TRIAD" camera a *double* film holder which is very light. If the amateur carries six of these holders (loaded with twelve films) he is well supplied for one day; that is, if he is prudent and aims to get only really good pictures. At night, either in a photographic studio or in his own hotel room, the exposed films may be put away into safe receptacles, and another lot of unexposed films substituted for them.

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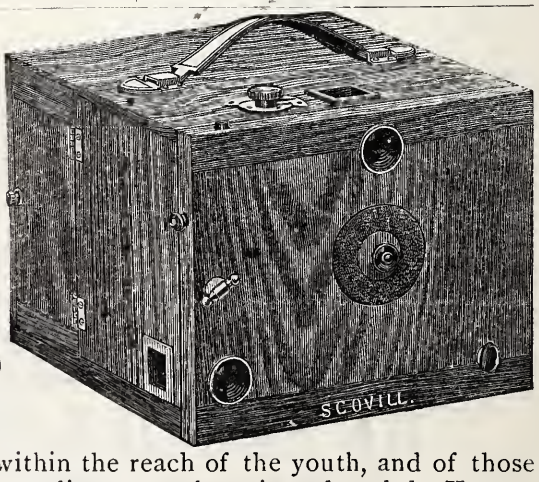
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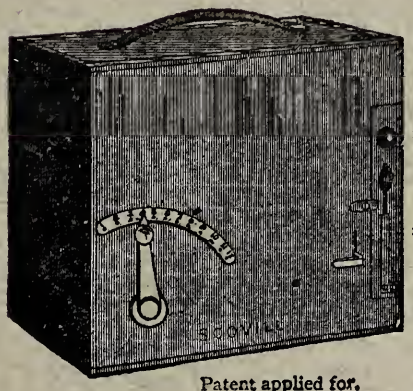
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(OVER).

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EASTER LILIES.

Miss Emily V. Clarkson, Photo.

THE PHOTOGRAPHIC TIMES.

VOL. XXII. APRIL 15, 1892. NO. 552.

THE FLOWER.

HOW fresh, O Lord, how sweet and clean
Are Thy return! even as the flowers in spring;
To which, besides their own demean,
The late-past frosts tributes of pleasure bring.
Grief melts away
Like snow in May,
As if there were no such cold thing.

Who would have thought my shrivelled heart
Could have recovered greenness? It was gone
Quite underground; as flowers depart
To see their mother root, when they have blown;
Where they together
All the hard weather,
Dead to the world, keep house unknown.

And now in age I bud again,
After so many deaths I live and write;
I once more smell the dew and rain,
And relish versing; O my only light,
It cannot be
That I am he
On whom Thy tempests fell at night.

Herbert.

EASTER LILIES.

THE beautiful and appropriate flower picture which adorns our magazine this week is from a negative by Miss Emily V. Clarkson, the gifted young lady amateur who has already exhibited so many superior photographic pictures. The present one, while somewhat different from much of Miss Clarkson's work, is no exception to the high standard of technical and artistic excellence which she has established for herself. The subject is simple, and is simply treated. It is, moreover, beautifully reproduced. We present this picture of Easter Lilies to our readers with the heartiest greetings of the season.

ORTHOCHROMATIC COLLODIO-SILVER-BROMIDE EMULSION.

BARON HUBL'S PROCESS.

ADD to a solution of 40 grammes (615 grains) of silver nitrate in 50 c.c. (1 ounce 6 drams) of water concentrated aqueous ammonia until a clear liquid is obtained, care being taken of not adding an excess of ammonia, and, afterwards, 100 c.c. (3 ounces 4 drams) of absolute alcohol. On the other hand, dissolve 30 grammes (462 grains) of potassium bromide in a mixture of 70 c.c. of alcohol and 35 c.c. of water, heating the liquid until the solution is complete.

To prepare the emulsion add, in the dark-room, the silver nitrate solution to 450 of plain collodion at 4 per cent. and shake violently, then immediately add the bromide solution, while still warm, in three or four times, slaking for a minute after each addition, and after the last addition continuing of slaking for a period of, say, three minutes, when the emulsion is ready to be washed. For this purpose distilled water is added to the emulsion by small quantities until it is precipitated, and the precipitate is washed by decantion, renewing the water four or five times. This done the emulsion is collected on a piece of linen, the water squeezed out, a little alcohol poured on the emulsion to remove the remaining water, and after squeezing out this, the emulsion is dissolved in 800 c.c. (32 ounces) of a mixture of ether and alcohol in which has been dissolved half a gramme of codein.

The emulsion should be allowed to ripen for, say, four days.

The silver eoside solution to render the emulsion color-sensitive is prepared thus: In 350 c.c. (75 drams) of water are dissolved 10 grammes (2½ drams) of yellow shade eosine, then 5 grammes of silver nitrate in 50 c.c. (12 drams 52 grains) of hot water are added. This is allowed to settle, and the precipitate collected on a filter is washed with boiling water, then with alcohol, and dried in the dark-room.

Copyrighted.

The solution to render the emulsion color-sensitive is made as follows :

Half a gramme (7½ grains) of dry silver eosine and 1 gramme (15 grains) of ammonium acetate are dissolved in 20 c.c. (5½ drams) of alcohol at a low temperature, then 170 c.c. (5 ounces 4 drams) of alcohol and 6 c.c. (1½ drams) of glacial acetic acid are added and the liquid filtered.

For use this solution is added in the proportion of one-tenth the volume of the emulsion and after mixing and allowing the whole to stand for a few minutes, it may be used to coat the plates beforehand prepared with a substratum to hold the collodion film. The color-sensitive emulsion will keep for a certain time in a cool room.

For developing Hubl recommends an hydroquinone developer thus compounded :

Hydroquinone	2 to 4 grammes	(30 to 40 grains)
Sodium sulphite.....	50 grammes	(13 drams)
Potassium carbonate.	20 grammes	(308 grains)
Potassium bromide..	2 to 6 grammes	(30 to 90 grains)
Water	1000 c.c.	(32 ounces)

After development the negatives are washed, fixed in hypo, then washed, etc. The color imparted by the silver eosine is removed by alcohol.

When dry the opalescent appearance of the clichés disappears by varnishing.

CELLULOID.

This curious compound was discovered by Hyatt in 1869. It is prepared thus: A roll of unsized paper is slowly spread by machinery, and upon it is directed a jet of a mixture of 5 parts of sulphuric acid and 2 parts of nitric acid, which converts it into a variety of nitro-cellulose (pyroxyline). After a thorough washing, the compound is ground with camphor until an homogenous mixture is obtained, which is then dried under the pressure of a hydraulic press between bibulous paper, and, after this, ground again, compressed in a special apparatus and heated to a certain temperature, whereby the whole is converted into a translucid, hard and elastic substance capable of receiving a high polish.

Celluloid heated to 250 deg. Fahr. becomes soft, malleable, can be drawn in very thin leaves which are employed by designers, painters, etc. Its application in the arts are indeed very numerous Mixed with zinc, and various colored substances it is used to manufacture combs, knife handles, collars, cuffs, etc., etc.

Celluloid is soluble in methyl alcohol (wood alcohol), amyl acetate (oil of pears), a mixture of ether and alcohol, either ethylic or methylic, in a solution of zinc chloride in twice its weight of hydrochloric acid, etc.

As is seen by its constitution celluloid is very inflammable. By time the camphor evaporates and the substance is disintegrated ; this fact is particularly interesting to photographers.

About the combustion of the compound in question we find in the *British Journal of Photography* the following "account of a very singular accident to a lady's dress, caused by buttons made of this class of compounds," which was published by Professor C. V. Boys : "She was in front of a fire, not blazing, but merely red ; the button was entirely consumed and others were scorched. Professor Boys has been making some 'rough-and-ready tests' with the buttons, which, as he puts it, show that they are for all practical purposes liable to spontaneous combustion."

FORMULAS AND PROCESSES.

Eiko-hydroquinone Developer.

It is well-known at present that para-amidophenol and eikonogen tend to yield flat negatives, and that, on the contrary, hydroquinone produces negative images having too great contrasts unless the exposure time be prolonged. By combining them the action of one counteracts that of the other and better results are obtained ; thus :

Eikonogen.....	5 parts
Hydroquinone.....	4 parts
Potassium carbonate.....	12 parts
Sodium sulphite.....	25 parts
Water.....	480 parts

P. C. D.

The following formula was given by Mr. Hudson at the last meeting of the Hackey Society, England :

A.

Hot water.....	2 ounces
Sodium sulphite...	4 ounces
Eikonogen	400 grains
Quinol.....	200 grains
Water to....	20 ounces

B.

Hot water.....	20 ounces
Potassium carbonate.....	2 ounces
Sodium carbonate.....	2 ounces
Water to	32 ounces

For instantaneous exposure, 1 volume of A, 1 of B, and 3 of water.

For landscapes, 1 volume of A, ¾ of B, and 4 of water.

Hydro-para-amidophenol Developer.

Para-amidophenol.....	5
Hydroquinone.....	3
Potassium carbonate.....	25
Sodium sulphite.....	50
Water.....	480

C. Ferret.

Orthochromatic Compound to Sensitize for Yellow, Orange, and Red.

Alcoholic solution of quinoline, 1 : 500	8 volumes
Alcoholic solution of cyanine, 1 : 500	1 volume
Aqua ammonia, U. S. P.	2 volumes
Distilled water	200 volumes

The aqueous ammonia should be added last.

The gelatino-silver bromide plates are bathed in this solution for about sixty seconds, then allowed to dry spontaneously.

The plates will keep for twenty days.

L. Mothet.

Toning Baths for Silver Bromide Prints.

To tone with uranium the eikonogen developer is the best to be used. Ferrous sulphate is objectionable on account of the difficulty of eliminating all traces of iron.

After fixing and thoroughly washing, the prints should be immersed for a period of from three to five minutes in solution of oxygenated water diluted with 50 volumes of water, then washed and afterwards toned in a solution by equal volumes of

A.

Uranic nitrate	1
Water	100

B.

Potassium ferricyanate	1
Acetic acid No. 3, pure	8
Water	100

The following bath gives bluish black tone. Gray proofs from over-exposure or defective development are improved when treated by this bath.

Ammonium sulphocyanate	8
Gold terchloride	1
Water	960

One should observe that uranium ferrocyanate acts as an intensifier, hence the proofs should not be pushed to black in developing, but kept rather weak, without, however, sacrificing the details.

Varnish for Negatives on Celluloid Films.

Celluloid is made with a variety of nitro-cellulose (gun cotton), soluble in alcoholic ether, methyl alcohol (wood alcohol), amyl acetate and other ethers. Alcoholic varnishes, those prepared with methylated alcohol, attack it, hence the necessity of using a solution of shellac which can in any manner act upon it. The following aqueous varnish is recommended by Mr. L. Mothet:

Sodium carbonate	2 grams
Borax	8 grams
Hot water	1½ litres

To this solution add 32 grams of white shellac, then 2 grams of glycerine and when dissolved dilute with water to make up 3¼ liters.

The pellicle is immersed in this, then allowed to dry spontaneously.

Solubility of Eikonogen.

Water at	75°	Fahr.	dissolves	6	parts of	Eikonogen	per ct.
"	70°	"	"	5	"	"	"
"	60°	"	"	3	"	"	"
"	55°	"	"	2½	"	"	"

W. K. B.

COLLODIO-SILVER CHLORIDE PRINTING-OUT PROCESS.

The original process was devised and published by Mr. G. Wharton Simpson in 1865.

It consists to coat a sheet of paper with an emulsion of silver chloride in collodion and to print by contact in the ordinary manner, but deeper, for the intensity is to some extent reduced by the toning and fixing operations, necessitating to employ more diluted solutions than those compounded for albumen prints.

Before coating it with a collodion emulsion, the paper should be superficially sized with gelatine or enameled to prevent the collodion from peeling off. Enameling is generally preferred, as forming a smoother surface to print upon and giving purer whites.

To gelatinize the paper it suffices to float it for a minute on the following warm solution and to pin it up to dry:

Gelatine	25 grains
Glycerine	10 minims
Alum	1 grain
Water	1 ounces

The alum is dissolved in a little warm water and mixed just before use.

For enameling the size is prepared thus:

Dissolve 150 grains of barium nitrate in 2 ounces of warm water, and, separately, 200 grains of sodium sulphate in the same quantity of warm water. Mix, wash the precipitate—barium sulphate—in several changes of water by decantation. Now let soak 400 grains of gelatine (Coignet's) in 12 ounces of water, add 3½ drachms of glycerine, and after dissolving in a water bath mix the precipitate of barium sulphate and filter through flannel.

To coat the paper pour the enameling solution in a shallow porcelain tray placed in a water bath heated to 80–85 deg. Fahr., turn up to about one inch one edge of the paper on the narrow side, and take hold of it by the two opposite corners, folding

it into a loop, then place the lower corner, that opposite to the turned edge, on the gelatine solution and with a slight pressure gradually lay the whole sheet upon it. Air bubbles are by this manner of floating the paper easily avoided. If the paper curl up, each sheet should be dampened on the back a little while before use. Now place a glass plate or a smooth board on the tray, leaving a small space on the end further from the body, and taking hold of the paper by the turned edge slowly and without a stop draw it off, prepared side uppermost on the board or glass plate, when before hanging it up to dry the gelatine should be allowed to solidify. When dry the enameled paper may be calendered to obtain a very smooth surface.

The emulsion is prepared as follows:

A.

Strontium chloride	3 grains*
Cadmium chloride	4 grains
Lactic acid	2 grains
Tartaric acid	2 grains
Pyroxyline, powdery	14 to 16 grains
Glycerine	4 minims
Alcohol	3 drachms
Ether	1 ounce

B.

Silver nitrate	30 grains
Water	15 minims
Alcohol	6 drachms

Dissolve the silver nitrate by the aid of heat, then mix the solution to A by small quantities, shaking violently after each addition. The emulsion is ready for use in ten or twelve hours. It should be filtered through flannel. It will keep for a very long time if kept in the dark.

Dr. Eder has published in *Phot. Correspondenz*, for February, 1889, the following formula, by which a photo-film much more sensitive than that prepared by the albumen process is obtained:

A.

Pyroxyline	4 grams
Ether	250 c.c.
Alcohol	120 c.c.

B.

Lithium chloride	1.5 grams
Citric acid	1.5 grams
Alcohol	50 c.c.

C.

Silver nitrate	14 grams
Distilled water, hot	8 c.c.
When dissolved add alcohol	150 c.c.

Add B to A, then by small quantities at a time mix the silver solution C and 4 grams of glycerine.

M. Carey Lea advises the addition of carbolic acid, from 6 to 8 per cent., to the emulsion, the brilliancy of the proofs being thereby much improved. The writer found that if the emulsion be not soon employed the carbolic acid reduces a part of the silver nitrate, without, however, impairing the emulsion to a great extent.

By diminishing the proportion of the organic acids (lactic, citric, etc.) to about one-half, the images are less vigorous. The contrasts are also softened by preparing the emulsion with a least excess of silver nitrate. Therefore the emulsion can be made according to the intensity of the negatives, the vigor or softness of the original picture.

For coating, the paper is pinned on a thin, smooth board—same size as the sheet of paper—with a handle, and having turned up the edges to about one-quarter of one inch to prevent the emulsion getting under, and holding the board with the left hand, the paper is coated as a glass plate, but by pouring the collodion slowly, else the film being too thin, the image would be flat, without vigor. When dry and well wrapped in blotting paper it will keep for a very long time.

It is advisable of submitting the paper to the fumes of ammonia before printing to obtain brilliant vigorous images. However, if the negatives are too intense it is best to expose the paper just as it is.

The collodio-chloride paper should be handled with care in the toning and fixing solution and especially when it is washed. It curls up when first placed in water, and if one tries to straighten it, it is surely spoiled. To prevent curling the proofs should be laid one upon another in a tray containing but a little water, just enough to cover them, and when quite flat washed by transferring them one by one from one tray into another, taking care not to rub them against each other.

Before toning it is important that the prints should be well washed, else they tone unequally. No acetic acid should be added to the first washing water as is usual with albumen paper, but it is well to dissolve a little sodium bicarbonate in the last one in order to neutralize any trace of acidity. Then the toning proceeds quite regularly.

The prints can be kept several days before toning, etc. It is advisable, however, to tone, not the day they are made, and this solely in order not to let them over night in running water to wash off the thiosulphates, but the next morning. They tone quite easily. The gold bath should be used cold, and not too strong, for the image would be

* It has been constated by Spiller that the coloration of the image varies with the chloride employed. It is sepia with strontium chloride, violet with cadmium chloride, brown with calcium chloride, etc.—*Journal Photographic Society*, 1871.

eaten up, as it is termed. If the bath is too weak and the image long to tone, the general appearance of the picture is dull, without brilliancy, or the whites will be tinted, or both.

If it happen that they tone unevenly, they should be lifted up from the solution, the spots rubbed with a soft brush dipped in alcohol, and when again immersed in the gold bath the stains will disappear (Geo. Bruce). This remedy succeeds also with albumen prints and gelatine negatives which do not develop well from greasy finger's marks.

The toning bath can be used according to one of the following formulas. The third is due to Mr. Bruce:

1.

a. Ammonium sulphocyanate.....2 drachms
Sodium acetate, fused..... ...1 drachm
Water.....1 pint

b. Gold terchloride... .....5 to 8 grains
Water.....1 pint

Mix *b* to *a*, add a little powdered chalk, let stand for about half an hour and filter

2.

Borax or sodium acetate.....35 grains
Gold terchloride.....1 to 1½ grains
Water..... .....8 ounces

3.

a. Sulphocyanide of ammonium. 1 or 2 drachms
Hyposulphite of soda (thiosulphate)..... ..... 2 grains
Water..... .....60 ounces

b. Chloride of pure gold, neutral...22 grains
Water.....60 ounces

"In making up a bath, equal quantities of *a* and *b* are mixed (adding *b* to *a* gradually), plenty of chalk being added, and letting the whole stand for from three to five hours before use."

To tone with this bath the prints should be freed, by washings made with extra care, from silver nitrate, and especially from any trace of acid.

After toning, the proofs are rinsed, then fixed in a *new* solution of sodium thiosulphate (hyposulphite) at 5 per cent. of water. An immersion of four or five minutes suffices. They are then washed three times in succession, then left for about four hours in water renewed every hour or so.

The collodion chloride emulsion whose formula is above given to obtain positive images by the continuous action of light contains, as does any other one, an excess of siver nitrate and an organic acid necessary for obtaining brilliant impressions, and also for the keeping of the photo-film. Hence when the prints are immersed, without having been previously washed, in a solution of a thiosulphate (sodium, silver or gold), the acid by decomposing this salt generates sulphurous acid with precipitation of sulphur, and the reduced silver constituting the photo-image is transformed into silver sulphite. This reaction is elementary and needs no explanation.

It is consequently evident that all the processes to fix and tone in one operation in a bath compounded with or without gold are quite objectionable and should be discarded; the prints are toned by sulphuration, and sulphuration is a cause of fading which cannot be remedied.

P. C. Duchochois.

THE CHEMISTRY OF PHOTOGRAPHY.

(*Continued from page* 172.)

CHAPTER VII.

The Chemistry of Alkaline Development.

Of the thousands who daily mix their pyro, ammonia, and bromide for use in development, how many, we wonder, give a thought to the "fathers of photography" who racked their brains to discover for us a wonder-working liquid, the application of which to a dry-plate should evolve with force and rapidity the picture drawn upon the plate by the lens?

Looking back for the origin of alkaline development, there is no doubt but that the *idea* was due to H. T. Anthony, of New York, and that it was extended by Leahy, of Dublin; Glover, of Liverpool, and (above all) by Major Russell.

The *Photographic News* for August 8, 1862, contains a letter from Mr. F. F. Thompson, of 2 Wall Street, New York, in which he writes: "The problem of instantaneous dry-plates is about solved by H. T. Anthony, Esq., of this city. His discovery consists in subjecting a tannin dry-plate to the fumes of weak ammonia for a few seconds, and exposing it within one day after fuming. These plates are extremely sensitive, two seconds exposure being sufficient with small diaphragm, and instantaneous with full opening of Harrison's stereo portrait lens. The development is conducted cold in the ordinary manner."

It is probable that Mr. Anthony was induced to try the effect of ammonia fuming upon collodion dry-plates by the success which had attended his plan of treating albumenized silvered paper in the same way; a plan which it appears he practiced as early as 1860.*

* See letter by Coleman Sellers in *British Journal of Photography* for January 1, 1863.

Another American worker, Mr. E. Borda, published certain experiments on rapid dry-plates in the *American Journal of Photography* for 1862.* He states that having tried the plan of fuming tannin dry-plates before exposure as suggested to him by Mr. H. T. Anthony, he had gone further, and found that fuming *after* exposure but before development answered equally well.

The first British experimenter to repeat Anthony's and Borda's experiments was John Glover, of Liverpool, whose article on "The Dry Development of Dry-Plates" appeared in the *British Journal of Photography* for October 1, 1862. The method was carried a step farther by T. M. Leahy, of Dublin, who—writing in the *Photographic News* for November 7, 1862—says: "In some experiments with the honey and tannin process in which I tried fuming with ammonia as an accelerator, I remarked that, when the plate was washed after the fuming, the image came out very distinctly; it struck me that the ammoniacal vapor might have become, in some manner, fixed on the plate, and that, on the application of the washing water, it dissolved and acted as a developer. Following up this idea, I gave a plate a very short exposure in the camera, and *immersed* it in a very weak solution of ammonia; almost immediately the picture began to appear, and continued to come out until nearly all the details were visible. I then washed it well and applied the pyrogallic acid and silver, which rapidly completed the development of the picture, without the least sign of fogging or stain of any kind.

"This development of the latent image could not have resulted from any free nitrate being left in the film, as I not only wash it thoroughly after sensitizing, but also pour a 3-grain solution of chloride of sodium two or three times over it, when I again wash and pour on the tannin and honey solution. The use of the ammonia in the liquid form, I think, has one great advantage over the fuming, it acts equally, and the picture being washed before applying the pyrogallic acid and silver, no deposit (such as sometimes occurs when the *fuming* is carried to any extent) can take place."

Step by step the method of alkaline development advanced: Anthony uses the fumes of ammonia; Leahy applies the same alkali dissolved in water. But it was reserved for Major Russell to perfect the method. In the *British Journal of Photography*, for 15th of November, 1862, Russell writes: "Having read the accounts from America of fuming dry-plates with ammonia, I next set about examining the capabilities of this agent, and during the last six weeks have made a great number of experiments with, to say the least, very promising results. . . . Thinking that the developing action of the fumes of ammonia must be due to their action on the tannin, the first thing I did was to try the effect of mixing a small quantity of ammonia with a solution of pyrogallic acid, which is much more unstable. The liquid showed no immediate effect, but changed color slowly in much the same manner as if nitrate of silver and acid had been added. On mixing the pyrogallic acid and ammonia, and immediately pouring it on an exposed plate, its developing action is very energetic, not only bringing out the image after very short exposure, but even in some cases producing a considerable although insufficient amount of intensity, which can very easily be increased to any extent by redeveloping* with pyrogallic acid and silver. Ammonia will develop a picture by its action on tannin if the exposure has been long enough; but it must be much longer than is required when pyrogallic acid is used in the same way.

"The principal precautions necessary are: 1st. That too much ammonia be not used; one drop of the strongest solution usually sold in four ounces of water generally seems to be sufficient, with a few drops of strong alcoholic solution of pyrogallic acid added to the portion to be used. There appears to be considerable latitude in the proportion of ammonia; but if too much is used the liquid becomes strongly colored very quickly, the high lights start out at once with some intensity, but the other portions of the plate show nothing but brown discoloration. 2d. That the alkaline and acid developments be kept quite separate, the plate being thoroughly washed under a stream of water after the former. If this is neglected the picture will be entirely spoiled.

"When these precautions are observed this method appears to be easy and certain, and the picture is very bright, clear, and free from loose deposit, much more so than when the ordinary plan is adopted with an under-exposed plate. The image is entirely in the film, and shows little or no dullness of surface on any part, even when the exposure has been as short as possible to produce a tolerable picture.

"These facts appear to throw doubt on the correctness of some of the commonly received opinions as to the nature of the developing action. The effect does not depend on the presence of nitrate

* Referred to by C. Sellers in *British Journal* for August 15, 1862.

* We should now say "intensifying."—W. J. H.

of silver, for pyrogallic acid and ammonia will succeed on a plate which has been immersed for some time in a very strong solution of salt, after the latter has been removed by copious washing and long soaking.

"It is hardly safe to venture an opinion as to the theory of the matter in the present state of our knowledge, but it seems to me that the decomposition of pyrogallic acid darkens the bromide or other insoluble salts of silver which are in contact with the impressed iodide. If this be so, it may account for the strongly accelerating effect of bromide (of silver) on dry-plates without nitrate, when used in a much larger proportion than would be advantageous on wet-plates from which the nitrate is not removed."

One more step! Russell *mixes the ammonia with the pyro*, and finds the mixture brings out an image capitally.

A year later, Major Russell describes * the development of bromised collodion plates with a solution of carbonate of ammonia and pyro. With bicarbonate of soda and pyro, the plate was quickly fogged.

It was seen that the new method of alkaline development was very promising; but it was soon found to be most successful with plates containing *bromide* of silver. The developer consisting of pyrogallic acid plus an alkali was, however, very frequently found to *fog* the plates. It was again reserved for Russell to discover † that the remedy for this fogging was the addition of a soluble bromide. He writes:

"The most advantageous way of doing this seems to be to moisten the film just before developing with a weak solution of bromide, or to mix a little of the solution with the alkaline developer, it does not much matter which, provided a suitable quantity of bromide is used in either case."

Major Russell was (very properly) proud of this discovery, which removed a great difficulty from the path of the early experimenters with alkaline development. Twenty-three years later he wrote in the "British Journal Almanac" ‡ an article on "How the Restraining Action of Bromide was Discovered." This article is very short, and we may quote it in full, as a tribute to the man who first put together the three ingredients of our alkaline developer:

"On finding out that great sensitiveness could be obtained on dry-plates prepared with bromide of silver in collodion, and experimenting with a view to discover the conditions most favorable to sensitiveness, at first it seemed as if the more washed the film the more sensitive. The plan was then tried of leaving the plates, after sensitizing, to soak in water for twenty-four hours.

"The plates thus treated, to my surprise, always fogged badly. On consideration, it seemed plain enough that the fogging must be caused by the too complete removal from the film of soluble bromide which had escaped decomposition by the nitrate bath.

"A few trials showed that this was so, and that soluble bromide is a restrainer for bromide of silver, treated with an alkaline developer."

The "dry-plates" referred to in these experiments of 1862–3 were prepared by giving the plate a coating of collodion containing either a soluble bromide plus an iodide, or a soluble bromide alone. Such plates were sensitized by immersion in a bath of silver nitrate, the result being the formation of silver bromide (or silver bromide plus silver iodide) in the film. They were then *washed* (to remove the excess of silver nitrate), flowed over with a solution of tannin, and finally dried.

W. Jerome Harrison.

(*To be continued.*)

* *British Journal of Photography* for 1st January, 186 .
† *British Journal of Photography* for 15th June and 1st July, 1864.
‡ For 1887, p. 240.

PHOTOGRAPHY FOR TOURISTS.

I HAVE just been trying some experiments with developers, especially hydrochinone and pyrogallic acid, and I repeat the conclusion of all my previous experience in favor of the latter, as the most potent, the most controllable and the most convenient. I had a quantity of the pellets which were sold by the Scovill & Adams Co. some years ago, and may be now, for all I know, but which I bought in New York when they were first put on the market, I do not know how many years since, but I think seven, and which had been kept in a loosely stoppered bottle in a cupboard and were supposed to be spoiled. I came across them the other day and took them over to the club, where I do all my work, to be tried. I found the inside of the bottle black from the dust of the pyro and the pellets slightly gray on the surface, but on being dissolved by the aid of a mortar and pestle, for they had become very hard, and treated as fresh pyro, there was no perceptible difference in the action or the keeping of the solution. The principal valid objection to the use of this developer, since the use of sulphite of soda has removed the discoloration it used to produce in prolonged development, has been the tendency to decompose in its dry state, and

the consequent difficulty of keeping it in partially filled bottles where the air had access to it. To those who work regularly and have to renew the supply frequently, this is of no consequence, but to people who, like myself, only get time to devote to the practice of photography at irregular and infrequent intervals, sometimes months lapsing between one trial and another, it may be important. In hydrochinone I can see no real advantage whatever, beyond the trivial one of not staining one's fingers, which I have no difficulty in avoiding the pyrogallic, and that freedom from the tendency to the dry decomposition which I have alluded to in pyrogallic acid, and which is an advantage for those who carry their developing on in the course of their journey, so as to be sure of their results before leaving their subjects.

I have been trying also at the same time, some old transparent pellicle, sent me from America shortly after the introduction of it. It had been two years in the roll-holder and I supposed was spoiled, but as I wanted to use the roll-holder I tried it before substituting a new roll. After the first two exposures, which were spotted so as to be worthless, the pellicle worked evenly, but with a tendency to veil, which at first prevented getting any intensity, and when pushed in development brought on a general blackening. I then applied the pyrogallic with a few drops of bromide solution and no alkali, soaking the film in this for several minutes before adding soda, and this precaution gave me as clear and brilliant negatives as I had got with fresh films, and with no longer exposures. Films on glass, not so long in store, were so spotted and fogged around the edges that they were worthless. The same advantage was shown in the trial of some Carbutt films sent me from the Scovill & Adams Co. at the beginning of last year, they developing in every respect as well as fresh, and as sensitive as the rapid plates from France or Belgium, which are the best we get here. This keeping quality is one of great importance, beyond the consideration of portability, and must be, I think, attributed simply to the fact that the films on the flexible basis are packed so closely together that they are protected from the action of the air almost as completely, in fact, as if they were sealed up hermetically. Glass plates, be they packed ever so well, must have between them either a free space or a layer of some organic material, paper or other, and in one case or the other there is a constant deterioration of the sensitive film; in the former case through the action of the air and the gases in it, as may be seen from the insensitiveness beginning at the edges and working inwards, and in the the latter from impurities in the paper or other substance in use. These agencies are entirely eliminated by the manner of packing of the flexible films, the Eastman being rolled with the sensitive surface against the celluloid, which has no effect on the bromide, so far as I can see, while the Carbutt films are packed as closely as they can be with the bromide surfaces in contact, preserving both from any foreign influence, as well as from the action of the atmosphere. With celluloid films and pyrogallic pellets there seems no reason why a man should not go round the world in a voyage of a year or two, carrying with him all that he would require to do all the photographing he desired to in the time, even if he intended to develop as he went on, a manner of proceeding hardly necessary to a man with moderate experience and judgment.

W. J. Stillman.

Rome, March 21st.

Notes and News.

Mr. Frederick E. Ives has accepted an invitation to lecture at the Royal Institution, London, in May.

Mr. Ives exhibited his colored photographs before the New York Camera Club, Monday evening, April 11th.

Next Week we shall present our readers with an excellent portrait of Frederick E. Ives, by Gutekunst. The portrait will be accompanied by a biographical sketch of Mr. Ives' career, and other matter pertaining to the subject.

We regret to note the death of Sarah J. Sellers, wife of Alfred Sellers, the well-known photographer and photographic writer.

Sold Out.—The publishers of "The American Annual of Photography and Photographic Times Almanac" report that their entire and immense edition of 16,000 copies of the book for 1892 is sold out. The editors report rapid progress on the book for 1893. It will be better than ever.

Four Extra Pages.—A supplement of four extra pages is added to the magazine this week, in order to include some interesting information pertaining to photographic societies, and yet much matter of interest is of necessity left over.

Do you look through the advertising pages? If you don't, you miss an important part of the magazine each week. The advertisements are constantly changing and new ones added every week. Examine them this week; they show progress.

If your friend is interested in photography, or, if he is likely to be, won't you show him THE PHOTOGRAPHIC TIMES? And please always mention our magazine in writing to advertisers in it.

All advertisers in THE PHOTOGRAPHIC TIMES are worthy of patronage. No advertisement is inserted in this magazine which in any way is likely to mislead the reader. All the leading dealers and manufacturers advertise in THE PHOTOGRAPHIC TIMES.

Articles on subjects of interest to photographers are always welcome. If available they will be promptly published in the magazine over the author's name.

John Calvin Moss, of the Moss Engraving Co., died on Friday, April 8th, at the age of 65 years. Mr. Moss was born in Washington County, Pennsylvania. His mother intended him for the ministry, but he devoted much of his time to the study of fine arts, and finally embraced photography. He had learned of the experiments of Nicephore Niepce and other pioneers of photographic mechanical printing methods, and early perfected a method of his own, by the so-called wash-out gelatine process, to prepare blocks for the printing press. He was practically the pioneer of photo-engraving in America, and started several companies to practise the process, none of which was as successful as the Moss Engraving Co., formed in 1880.

The *Bulletin* of the Association Belge de Photographie, of which he was a member, gives a phototype portrait of Stas, the eminent Belgian chemist. It took him six years to study the properties of bromide and chloride of silver. Some of his experiments were of such a delicate nature that he frequently had to sit up all night and watch the substance upon which he was working.

Ruled Gratings.—Our readers have on previous occasions had brought under their notice the gratings ruled on a concave surface, by means of which Professor Rowlands has been able to secure such marvelous photographs of the spectrum, exceeding in size anything before attempted in direct photography. Practical mechanics know the great difficulties attending the construction of gratings of such delicate character as is needed to produce a high-class spectrum. The machines hitherto employed by the Professor enables him to rule lines 50,000 to the inch, but he has just completed the making of perfect screw which will enable him to make lines of the extraordinary closeness of one million lines to the inch. Lines so fine cannot be seen with the microscope, about 100,000 to the inch being the limit of vision when so aided. The new automatic machine is of marvellous construction, and has many devices to compensate errors; it requires six days' continuous working, day and night, to one grating of the size needed to study the constitution of the solar radiations.—*British Journal of Photography.*

Photography in Disease.—"The science of photography is yet in its infancy, and one can only surmise what the lens of the future will disclose of the wonders terrestrial and celestial," said Dr. M. L. Vander Straken, of Kansas City, at the Laclede. "The latest novelty in the way of photography is the employment of the camera at hospitals to register the modifications of disease. Different proofs are taken of the patient at various stages of the disease, and the comparison of these with photographs of others similarly afflicted disclose phenomena of great interest and value to medical science. The modifications shown in the case of a disease may not have anything remarkable in themselves, and may not constitute anomalies, properly speaking; but if one finds the same indications in a whole series of invalids suffering from the same disease, we then have a fact of extreme importance, for they show the indications imputable to that disease. It is by the examination of a great number of invalids, by the comparison of photographs carefully collected, and sometimes brought from the other side of the world, that one of the French medical schools has been able to describe certain pathological phases of unique interest."

Silver Prints Done Thirty-eight Years Ago.—When one sometimes sees silver prints done thirty-eight years ago, with the whites of the picture perfectly pure, and not the slightest trace of yellowing or fading in the lightest tints—in fact, the prints as perfect, apparently, as the day they were done—one cannot but help thinking that there cannot be much the matter with a silver printing process that give such results, and this even when the mounts had been damaged by damp.

But who produced these photographs? Ah, that is the secret, to a great extent, of the whole matter! They were done by men thoroughly well up in photographic chemistry. They used the best paper they could procure; they salted, sensitized, and prepared their *few* prints with every care. The time taken up in preparing the sensitive paper made them careful in their work at every stage. Then they altered their salting and sensitizing baths, so as to obtain the best results from each one of their few negatives. A negative in those days represented time, enthusiasm, and patience. There was no "pull the string, press the button, and we do the rest" about it.—*British Journal of Photography.*

Photographic Societies.

THE COLORADO CAMERA CLUB.

A MOST successful and enjoyable reception and housewarming was given by The Colorado Camera Club, at their new club-rooms, on Tuesday evening, March 8th.

A very creditable exhibition of pictures by the members filled the walls of the reception-room. Among the best work displayed were some very fine panoramic photographs by W. H. Jackson, which were greatly admired.

The microscopic work by Professor Hart proved very interesting. R. M. Davis, W. E. Perkins, C. C. Candy, and others, had attractive displays.

After the visitors had inspected the exhibition of photographs a lantern exhibition was given in the large operating-room.

W. E. Miles was the lecturer of the evening; and Professor Hart managed the stereopticon. An orchestra provided music during the evening, and the three hundred guests departed at eleven o'clock, after a most enjoyable entertainment.

The club-house was originally built for a photograph gallery, and is therefore particularly well adapted for the purposes of a photographic society; as there is a large and well equipped dark-room—a good large operating-room with north light—large printing and bromide enlarging-rooms.

Visitors can obtain cards entitling them to the privileges of the club by applying to the writer.

H. S. Bellsmith,
Cor. Secretary.

CALIFORNIA CAMERA CLUB.

"OUTINGS."

THE matter of "outings" is destined to be an important one in the future of the California Camera Club.

The Field Committee, in arranging a series of 10 or 12 semi-monthly "outings," hope to promote more interest in out-door photography, a better acquaintance among the members, and, as a result, to gather new and fresh material for both print exhibitions and pay lantern shows.

The initial outing to Niles Cañon, March 27th, was postponed until the weather becomes more settled. Five of the club members who were willing to risk the storm had a very pleasant trip to Mill Valley, and some very fine negatives were made. The trip was a most enjoyable affair.

The next outing, April 10th, will be to San Mateo, and back to the Big Dam at New Crystal Springs. This is a very pretty trip and a large attendance is expected. All are invited, and we trust that the members will do all in their power to make a success of the outing. Ladies and your friends interested in photography are welcome. Railroad fare, round trip, 75 cents.

If each member participating in these excursions will contribute to the Club two or three prints from each trip, the nucleus of a very valuable as well as a historical collection can be started.

A schedule of the outings will be issued shortly and particulars of each trip posted on the bulletin-board in the club-rooms.

W. J. STREET,
J. J. B. ARGENTI,
W. B. LEE,
Field Committee.

March 31, 1892.

CALIFORNIA CAMERA CLUB.

"CLUB TALKS."

THE members of the California Camera Club are informed that hereafter on every Wednesday evening there will be a "Club Talk" at the Club rooms. These weekly meetings have been instituted for the purpose, and with the idea of enabling the members of the Club to become better acquainted—of affording them an opportunity for the discussion of matters photographic—and for the general exchange, in an informal manner, of ideas, suggestions and opinions.

As at present contemplated, the "order of exercises" will be about as follows:

A paper on photography, previously prepared with great care by one familiar with the subject, will be read.

Immediately after the reading of the paper the presiding officer will institute a discussion by calling upon some member present for an expression of his views concerning the matter treated of in the paper. After this the discussion will become general.

When practicable, photographic novelties will be exhibited at the meeting, and in the case of mechanical inventions, will be thoroughly explained. New developers will be explained, and the merits shown. If a new printing process is mentioned in the journals, investigation will be made into its practicability and beauty, and the results of such investigation disclosed at these meetings.

If talent is present, a little extempore musical entertainment will help fill up the evening.

And finally, there will be served a little refreshment in the way of sandwiches and the accompanying.

One result of these "Club Talks" is at once apparent. A member who visits the rooms on Wednesday night will be sure of finding some one in the room with whom he can have a little talk, and spend an evening with a photographic acquaintance.

If the Room Committee receives proper encouragement, in a very short time there will be something going on in the rooms *every night*. Classes, lectures, "slide tests" and demonstrations will make the Camera Club a pleasant place to spend any and every night not otherwise particularly engaged.

Any suggestions concerning these meetings (or concerning any matter in their jurisdiction) will be thankfully received by the members of the Room Committee. A box has been placed in the rooms, into which may be dropped any written suggestion—and every member of the Club is especially invited to avail himself (or herself) of the opportunity presented. Any complaint which may be made will be at once looked into, and any commendable suggestion will be adopted.

CHAS. A. ADAMS,
GEO. R. BUTLER,
C. F. CORMACK,
Room Committee.

COLOR IN THE CAMERA—LIGHT THROWN ON PHOTOGRAPHY'S NEWEST ACHIEVEMENT.

TINTS FLASHED OUT BY THE LENS.

AN INTERESTING ILLUSTRATED LECTURE BEFORE THE PHOTOGRAPHIC SOCIETY OF PHILADELPHIA,

BY F. E. IVES.

THE first public lecture illustrated with specimens of colored photography was delivered at Association Hall last night under the auspices of the Photographic Society of Philadelphia. Scientific demonstrations of the Ives process have been previously made at the Franklin Institute, but these were purely of a scientific nature. The hall was

filled to the roof last night by an enthusiastic audience, and every view in colors was received with applause that brought blushes of pride to the cheeks of F. E. Ives, the pioneer of colored photography, who worked the stereopticon end of the lecture from the balcony.

"From Philadelphia to the Grand Cañon of the Yellowstone National Park," was the subject chosen for the lecture. Mr. Ives furnished the colored photographs, while W. N. Jennings furnished the plain photographs, and delivered the lecture. In his introductory remarks, the latter paid a graceful tribute to his co-laborer.

"When about 13 years ago," he said, "Mr. Ives undertook to reproduce, by means of photography, the colors of nature, he fully realized that no light task was before him. Year after year he kept steadily at work, determined to win the battle, till at last success crowned his efforts."

The first few views were from plain photographs, but when the first colored photograph was projected, the audience gazed spell-bound. For a moment there was a dead silence. Then as one man the large audience burst into applause that lasted for several minutes. From that moment the success of the lecture was assured.

No Brush Equal to the Magic Lens.

When thrown upon the canvas the colored photograph is a perfect miniature of nature. No oil painting could possibly produce even an approach to the effect caught in the magic lens of the color camera. The delicate cloud effects, the various tints of foliage and water, the different colors in the rocks, all are perfect. The view of McCartney's cabin, the first hotel established in the park, is a thorough test. The many gradations of color in the landscape are brought out perfectly. Where the logs of the cabin have been exposed to the weather they have become bleached, while those in the shelter of the overhanging eaves still retain their natural orange brown color. The grass in the foreground suffers from a lack of moisture; while that in the rear of the cabin, fed by a mountain stream, is a bright, fresh green. Another shade of green is visible in the window blinds, and still another in the dark pines of the hill-side. The dark indigo blue of the sky stands out in bold relief. All the colors of the original landscape and its finest gradation of light and shade are here most faithfully reproduced.

Mr. Jennings' lecture was delivered throughout in a delightfully chatty vein, interspersed with wit and enecdotes of no mean quality. His own plain photographs, many of which were character sketches, added much to the charm of the entertainment, but as he himself admitted the crowning feature was the perfection of Mr. Ives' experiments with the color camera. The Yellowstone Park was chosen because of its variety of color. The scene from Jupiter's Terrace is full of it. In the foreground is a small pool. In the centre, the water is almost boiling, from which radiate delicate bluish-green silken threads, gradually running through the scale of color, until at the edge of the pool it assumes a deep purple. The cliffs of Golden Gate afford an excellent opportunity for the reprodction of color in rocks.

"Even the most prominent impressionist," said the lecturer, "wrings his hands in despair as he gazes upon this marvelous mosaic, and frankly confesses that brush and pigment in the hands of the most skilled artisan fall far short of doing justice to this masterpiece of nature."

Mr. Ives starts on a two months' European tour next week, partly to obtain views and partly to accept numerous invitations to lecture before the best known scientific institutions of Europe. Upon his return he will spend the summer in the Yellowstone Park, which locality he says is unexcelled for the purpose of procuring colored photographs. Since last summer's trip he has perfected the color camera, and where previously he experienced some difficulty in reproducing the colors in the water, because of the reflection, he will now be able to overcome this difficulty. He expects to return next fall with hundreds of views, even better than those exhibited last night. —*Philadelphia Record*, April 6, 1892.

The Editorial Table.

Crayon Portraiture. Complete instructions for making crayon portraits on crayon paper and on platinum, silver and bromide enlargements. Also directions for the use of transparent liquid water colors and for making French crystals. By J. A. Barhydt. 12mo, cloth, illustrated, revised and enlarged edition. Paper, 50 cents. Cloth, $1. New York: The Baker & Taylor Co.

This is a carefully prepared hand-book for professional and amateur artists, written with special reference to giving such full explanation of details as to furnish to those who desire to take up crayon work, a full knowledge of all the materials required and their use and manipulation, together with all the methods and processes employed. The coloring of photographs, engravings and photogravures with liquid water colors and the making of French crystals are also fully treated.

The author's successfully accomplished intention was to furnish a manual that would enable the student, without other instruction, to learn with exactness all he required to know, in addition to some general knowledge of drawing, to enable him to undertake the making of crayon portraits for a livlihood or to gratify his taste as an amateur. How carefully the whole field has been covered is indicated by the following

TABLE OF CONTENTS.

Crayon Portraiture.

Preface. Crayon Portraiture. Photographic Enlargements. Crayon Materials. The Specific Use of Crayon Materials. The Strainer. Mounting Crayon Paper and Platinum and Silver Enlargements. Mounting Bromide Enlargements. Outlines—Negative Outline. Magic Lantern Outline. Transfer Outline. The Metroscope. The Pantograph. Crayon Effects—The Four Methods of Making Backgrounds. Free-hand Crayons and those made from Photographic Enlargements. Filling in the Free-hand Crayon. Line Effect. Stipple Effect. Backgrounds—General Principles. First Method of Making the Background—Stump Effect. Second Method of Making the Background. Third Method of Making the Background—Line Effect. Fourth Method of Making the Background—Stipple Effect. Face—Line Effect. Dress—Line Effect. Bromide Crayons. Finishing Bromide Enlargements. Monochromes. Values. The Studio. Framing. Passepartout Mounting.

Transparent Liquid Water Colors for Coloring Photographs.

Materials Required in their Use. Theory of Color. Colors. Yellow. Blue. Rose. Violet. Magenta. Flesh. Brown. Black. Gold. Instructions for Using Liquid Water Colors. Drapery. Landscape. The Principle.

French Crystals.

Materials. The Method. Mounting French Crystals. Finishing Photographs in India Ink. Conclusion.

List of Illustrations.

Free-hand crayon made on Steinbach crayon paper with a magic lantern outline, showing stipple effect in face and drapery, and broken line effect in back-ground. Negative outline—dark chamber. Magic Lantern, with Wonder camera attachment. Magic lantern outline. Lines to produce stipple effect. Background—line effect. Line effect for face. Line effect for dress. Crayon executed over bromide enlargement made from original negative, showing stipple effect throughout.

The book is handsomely printed on heavy super calendered paper, and besides the cuts used to illustrate the text, contains two half-tone plates made from crayon portraits by the author, showing free-hand work, and that on a bromide enlargement, and illustrating the line and stipple effect. The cloth edition is handsomely bound, with gold and ink side and back stamping; the paper copies are bound in a light green cover with a beautiful design printed from a half-tone plate.

For sale by dealers in books and in artists' materials, or sent, post paid, on receipt of the price, by The Scovill & Adams Co.

Mr. F. J. H., of St. Paul, sent us some exceedingly fine photographs, among them the picture of a little girl which is a gem. Mr. H. states that these pictures are permanent, not having undergone any change whatever after ten days' exposure to the sun. Good! but when we first examined them we saw that they would fade, and they do gradually fade, at present the whites being already yellowish, etc., and it is only three days they are in our possession.

We have more to say about fading, and we shall publish it soon.

Coupe (l'able J.). "Méthode practique pour l'obtention des Diapositives" au gelatino-chlorure d'argest.

The author had for object in writing this book to teach to those who operate seriously, the manner of making diapositives for projections and for the stereoscope. The first part contains the description of the manipulations; the second, numerous formulæ for developing prints and strengthening the proofs, and unpublished *tours de main.*

This excellent little treatise is well made. It is published by Gauthier Villars. Price, fr. 1.25.

Record of Photographic Patents.

472,257. Photographic Camera. Benjamin J. Edwards, London, England.

472,442. Magazine Camera. Arnold L'Eplattenier, Brooklyn, N. Y.

Queries and Answers.

236 E. W. B. asks: (1) Can the diamond dyes be used in preparing carbon paper? (2) The following is a formula similar to many in Duchochois reproduction process. Please explain. A solution of perchloride iron at 10 or 12 per cent of water.

236 *Answer.*—(1) In dilute solution. (2) We advise to take the official perchloride of iron solution according to the United States pharmacopia.

237 P. F.—(1) Newfoundland. Please give, through the columns of your paper, plain instructions how to make a toning bath with chloride of gold. (2) Can pure whites be obtained with the Phœnix ferrotype dry plates for positives. (3) In which way can I sensitize my own paper (being an amateur).

237 *Answer.*—(1) and (3) Read the respective Chapters of "Photographic Instructor," third edition. Scovill & Adams, publishers. (2) The whites of ferrotypes are never perfectly pure, with either collodion or gelatine a grayish, or yellowish tint prevails, sometimes a metallic lustre. Very fine ferrotypes have been made on Phœnix plates.

238 Wm. Wurtemberg.—Will you please answer in Times the following: (1) Which is considered best by professionals, salt or acetic acid for making albumen prints red before toning? (2) Which is best for keeping printing bath neutral, ammonia or sal soda? (3) Which produces the finest tone and the softest print?

238 *Answer.*—(1) Acid acetic is used by the majority of professionals. (2) We prefer the sodium carbonate or sal soda. (3) That depends mainly upon the skill of the operator, because either of the methods is good.

239 A Subscriber writes as follows: "I was much interested in your article on 'Color Photography,' in your last number, but I do not understand how the paper is exposed—in the camera or under a colored negative? Are results permanent? Can the ordinary commercial chloride of calcium, which sells at about 10 cents per pound, be used in calcium tubes and for other drying purposes, or must it be a purer quality?"

239 *Answer.*—In reply to this inquiry we may say that painted transparencies, such as colored lantern-slides or patterns made up of pieces of colored glass, are the best things to try color printing under by Kopp's method. Exposures can be made in the camera only under specially favorable conditions of subject and light, with very long exposures.

240 Mr. G. T. W., of Baltimore, asks us what is the difference between chloride of gold and pure gold terchloride.

240 *Answer.—Chloride of gold, gold terchloride* and *auric chloride* are synonyma, that is, these terms designating the same compound, $AuCl_3$.

Every photographer, amateur or professional, who is desirous not to work mechanically, as a machine, without knowing what he is doing, should study the first notions of chemistry. This science being the basis of our art explains the actions by which the photo-image is formed and what is its constitution. And, what is also quite important, it will guard the photographer against the use of certain processes, from time to time published without comments, which only lead to untold troubles and insuccesses.

SUPPLEMENT

TO THE

Photographic Times.

APRIL, 15, 1892.

THE NEW YORK CAMERA CLUB'S EXHIBITION OF PICTURES.

The exhibition of photographs made by the members of The New York Camera Club is worthy of the preceding, remarked a friend of ours whom we met there. And it is a very good one, *en verité*. There are over 250 pictures, which, with very few exceptions, are excellent photographs giving a good impression of the ability and artistic taste of the exhibitors.

A great many of the pictures are printed in platinum which is a warranty of their durability. Of this we were exceedingly pleased, for it shows a tendency to discard any process which yields pictures of doubtful permanency. Fading disgraces photography.

Kallitypes are also exhibited. Are they permanent? Time will tell. Judging by the process and the constitution of the image, which is formed by precipitated metallic silver, and, perhaps, traces of a basic salt of iron, we think, *a priori*, that they must be more permanent than prints obtained by the acid development, which we know by experiment to better stand the atmospheric oxidation, and other pernicious influences, than those printed on silver paper by the continuous action of light.

Pictures printed by the photo-mechanical processes are not yet made by the members of the club. This we regret. They are the only ones which are *absolutely* permanent, as seen by the flemish xylographs printed in the beginning of the fifteenth century.

Generally, it is told in text-books that these processes offer great difficulties. It is not our opinion; and if, however, there are some—which we admit—they are not such as not to be easily surmounted by any member of the club. Impossibility is not an American word. It is true that one seldom succeeds in printing a certain number of collo-photographs exactly alike, except by using a costly press which makes the work mechanically; but the beauty of the proofs, which are real aqua tints without grains, more than compensate their non-uniformity; moreover it is not necessary even for the illustration of books.

The number of proofs exhibited in the rooms of the club is great, over 250, as we have said. We cannot describe every one which would oblige us to repeat over and over again the same qualificative adjectives. It suffices to notice a few of them to give to the reader an idea of the excellence of the exhibition.

No. 1 of the catalogue, "A Snap Shot," by Mr. T. H. Halsey, is a bromide enlargement of a good black tone, and not without merit. It represents the head of a horse who posed quite well and took a pleasant expression; no wonder his gentle lady is kissing him!

Mrs. H. W. Cannon exhibits numerous photographs printed on albumen paper. No. 2, "Snaps," is a frame containing pretty pictures of pretty children. The landscapes, etc., Nos. 46, 47, 48, in all ten excellent pictures, should be mentioned. The exhibition of Mr. Charles F. Zabriskie is also very large. The pictures are printed on New York aristotype paper. The subjects are well selected, well lighted, the tone is good, but we think that either the exposure has been short or the pictures developed with too strong pyrogallol developers or, likely, hydroquinone. The contrasts are somewhat too great, we think.

Amongst the pictures exhibited by Mr. Charles W. Stevens we have specially remarked two very fine marines, No. 102. The seven pictures in frame No. 99 are all very fine also. Mr. Stevens prints in platinum.

No. 6. "My Jack," is a good picture of a black engraving tone printed in platinum. No. 37, "October," is an exceedingly fine and effective picture. "Along the Canal," No. 104, is another good landscape. We like also "A Corner of Wales," with its trees framing the scene, No. 110. All these photographs are the work of Mr. Edward H. Graves.

No. 7, "My Photographic Chum," by Mr. Walter L. Pierce, is a pretty picture representing a lady in the wood. The tone is very good. Besides this

Mr. Pierce exhibits in one frame seven pictures taken in the Nicatous Deer country, Maine, among which we admired No. 6. It is *tout-à-fait* artistic; a picture.

The "Portraits," by Mrs. R. P. Lounsbery, on albumen paper, are well posed. That of the Turk is specially good. Other portraits in frame No. 17 are commendable, one of them is very remarkable by the fine effects of lights and shades.

One of the gems of the exhibition is "Railroad Crossing," by Mr. W. Townsend Colbron; the fineness of the details cannot be surpassed, the tone is excellent, etc., etc. This beautiful picture is on celluloid, No. 18 of the catalogue.

Mr. Harry B. Reid's pictures are every one excellent. Nos. 19 and 23 are plain silver prints toned with platinum, the color is engraving black not that blue inky tone often obtained with gold. Nos. 39 and 40 are very good photographs in platinum.

Mr. William A. Fraser exhibits a very fine collection of flowers. The negatives and prints are on Obernetter paper.

No. 20 is a frame containing five pictures partly taken in Paris, partly in Brittany, by Miss Frances Virginia Stevens. They are exceedingly fine, well in relief by soft, effective contrasts of lights and shades; No. 4, "Portals of Notre Dame, Paris," with figures, is *ravissant*, full of delicate details; so is also No. 5, "Roman Arch." The pictures in frame No. 24 are beautiful also. All are printed in platinum, of course. Bravo!

Mr. David Williams' "Souvenir of Portugal," silver prints toned with platinum. Are they more permanent than those toned with gold, everything being equal? It is very doubtful. Gold and platinum behave in the same manner in chemical actions and possess similar properties. We have remarked two excellent photographs in frame No. 21, one on the left, the other on the right. There is also in No. 22 a very effective picture on the left of the frame.

Mr. Franklin Harper exhibits a large and fine collection of chosen subjects. The negatives and prints are kallitypes, with the exception of Nos. 34 and 95, which are Obernetter, negatives and prints. No. 25 is a *remarkable* enlargement from an original figure 1 inch in height.

"Copy of an Old Portrait,', No. 28, negative and print by kallitype No. 2, is quite good. We thought at first that the negative had been made on a plate color sensitive. The landscapes Nos. 45 and 103 are made in the same manner and worth mentioning. All this is the work of Mr. William Barker.

Frame No. 29 contains a series of very fine photographs in platinum, which makes honor to Mr. Lindsay C. Ivory. They represent hunting scenes and landscapes around the Pistol Lakes, Maine.

Mr. A. Willard Bates, Jr., exhibits various copies of paintings; very difficult subjects well rendered.

The pictures exhibited by Mr. Henry A. Blythe are remarkable, specially those entitled "Presbyterian Church" and "Main Street, Ridgefield." They are aristotypes.

"Contemplation" and "Arrived at Last," by Mrs. Jonathan Thorne, Jr., are portraits well composed by soft effects of lights and shades. Six pictures in frame No. 38 deserve a special mention.

Mrs. James S. Day exhibits six pictures (No. 44), which are good. They are also excellent, those by Miss M. L. Ewen, Nos. 50, 51 and 115, the latter is a bromide enlargement not without merit.

"Gleaning," No. 52, on plain paper, by Mrs. Willard Parker, is indeed an exceedingly fine picture. Perhaps the exposure has been a little short or the development made with a solution tending to give contrasts.

Mr. F. P. Cutting's six pictures (No. 53) are very pretty.

Mr. William J. Cassard makes a *splendid* exhibition of flowers, showing excellent orthochromatic effects. All platinotypes.

"Sheep Studies," by Miss Mary E. Martin. Excellent platinotype pictures which may serve as studies to painters. *Tous nos compliments, Mademoiselle.*

"One Little Maid from School," No. 106, by the same artist amateur photographer *est jolie au possible*. We find that the vignetting is defective, moreover such subjects do not admit it, in our opinion. We would like an appropriated background made by double printing, or one entirely white, which can easily be done.

Mr. James L. Breese exhibits portraits printed by the carbon process. Those in frame No. 66 are excellent. We do not like the *sanguine*. It is flat, without effect. Matter of taste, however.

"High Bridge, 1892," No 67, by Mr. Edward P. Fowler, represents good nature-like views.

The "Odds and Ends," No. 70, by Mr. Samuel W. Bridgham, are good pictures, full of details. The child feeding chickens is artistic, and would make a painting not without merit.

By Mr. Grey Phillips, No. 72, "On Saw-Mill River Road," is quite an effective landscape, the distant grounds are *en place*. A perfect picture on the whole. Other pictures by this member of the club deserve to be noticed.

Mr. Henry R. Taylor exhibits marine pictures, amongst which there is a gem, No. 94, representing Newport Harbor. It is an effect of moonlight with clouds, which at a distance I first thought to be the copy of a Gudin. The tone is appropriated to the picture. We should like to see it printed in platinum instead of plain silver, it would not fade then.

Lieut. T. W. Moore's, U. S. A., pictures mostly represent scenes of Indian life. There is a fine atmospheric effect in the picturesque scene, "Camp on the Yellowstone—Northern Cheyenes," and a very good study of trees in "Cottonwood Grove on the Arkansas, Colorado." All the subjects are well selected.

Mr. J. Howard Wainwright exhibits a collection of all good landscapes printed on plain silver paper. Amongst them there is one (a house with a veranda) which is an example of appropriated exposure-time, and of a well-conducted development.

The interiors by Mr. William E. Bond are exceedingly well photographed.

Two marine views, No. 102, by Mr. Charles W. Stevens, are pictures of great merit; good negatives, good prints consequently.

The exhibition of Messrs. H. C. Mabie and S. Gifford Slocum are commendable.

Two portraits are exhibited by Mr. E. N. Dickerson. No. 116 is a portrait of a gentleman (about a half-size head) lighted with real Rembrandt effects. The lighting of the ground is, however, defective, being evenly shaded, instead of opposing light to shade and shade to light to relieve the whole. No. 117 represents a standing lady, well posed, well lighted, with contrasts well placing the figure in relief. The dress is exceedingly brilliant. Both pictures are of great merit.

Having critically examined all the pictures, the difficulties which the amateur photographer encounters in making portraits at home without a skylight; in photographing outdoor subjects which so much vary in color, in illumination, sometimes showing too great contrasts, sometimes not enough, which, therefore, necessitates different exposure-times, and consequently a different treatment to develop the invisible image in order to obtain the best possible results, occurred to us; and we thought that the New York Camera Club should be proud to present such a remarkable collection of generally good pictures.

P. C. D.

Photographic Societies.

N. Y. CAMERA CLUB LANTERN-SLIDE EXHIBITION.

A REMARKABLY fine exhibition of lantern-slides by members of the N. Y. Camera Club was given on Friday evening April 1st, as a conclusion to their picture exhibit.

The slides were, in the main, technically perfect. Composition and light and shade had evidently been carefully considered, and almost every slide was a study and a treat.

The work of Messrs. Stevens, Graves, Breese, and Dr. Fowler was really of the highest order, and was above any criticism. Mr. Halsey exhibited some stunning moonlight effects in New York harbor (taken probably against the sun at sunset) which reflected credit alike on his technical skill and artistic feeling.

A noticeable feature of the entertainment was the animal work of Miss Martin; groups of sheep, cattle, horses, dogs and porkers were shown, and were thoroughly worthy of the spontaneous applause received. A colored slide of a vase of pansies by Mr. Bridgham was a creditable attempt at this difficult art and should stimulate the members of the club to do more coloring. Slide coloring is not as popular in this country as it should be, and should receive greater attention, especially from a body of amateurs so strong in other photographic manipulations as the Camera Club. Mr. Bridgham's coloring was neat and without blotches, such as often distinguish amateur efforts, but it was lacking in brilliancy. We would suggest the use of more transparent color. Not a little interest was added by the appropriate titles of the humorous slides and the comment on them by Mr. Halsey who acted as lecturer.

After such an exhibition as this, let no one speak lightly of the amateur. The professional has got to rise early and stay up a long while to produce a hundred and fifty such slides as these were.

Another exhibition is contemplated which may occur in about three weeks, and we advise all the lucky ones who get tickets to use them and they will be profitably instructed. *Vive l' amateur.*

E. W. N.

THE PHOTOGRAPHIC SOCIETY OF KANSAS CITY.

THE second semi-annual election of officers of the Photographic Society of Kansas City, was held at the studio rooms, on the evening of March 23d. All the members were present, and after the usual routine business had been disposed of, the election of officers was held, resulting in the re-election of the present incumbents, as follows: President, J. P. Reymond; Vice-President, Dr. S. T. Stark; Secretary and Treasurer, C. H. Clarke; Assistant Secretary, L. D. Arnold; Executive Committee, President Reymond, Vice-President Stark and Secretary Clarke. A number of important improvements in the studio were suggested and agreed upon, and will be made at once.

This society is now in a flourishing condition, holds regular meetings for the transaction of business on the fourth Wednesday of each month, and holds special

meetings for entertainment and the discussion of photographic matters on the evening of the second Wednesday in each month. During the coming spring and summer, the members of the society expect to take great interest in photographic work, and the studio will doubtless be crowded with enthusiastic workers most of the time.

C. H. Clarke,
Secretary.

THE PHOTOGRAPHIC SOCIETY OF JAPAN.

A MEETING of the above-mentioned society was held on Monday, February 29th, at 7 o'clock, P. M., at the Bankers' Hall, Sakamotocho, Nihonbashi, Tokyo, Mr. Kajima Sebi in the chair.

The following gentlemen were unanimously elected members of the society: Count Toda, Viscount Sagara, Messrs. A. D. Charlton, A. Rogers, F. W. Gotch, Y. Takayasu, and I. Tanabe.

After this there was a lantern meeting, a large number of slides from work done by members during the past year being shown by a lime-light lantern. The slides were all good, the large collection of the chairman itself, which was of the highest quality, being enough to have made an excellent show.

There was a fair attendance, and all who were present showed great appreciation of the exhibition. Indeed, it was declared the best thing of the kind that had been seen by any present in this country.

Mr. Edmond R. Holmes expressed the opinion that such an exhibition would draw a large audience in Yokohama, and suggested that it be repeated there. The proposition was received with satisfaction, and the Committee promised to make arrangements accordingly.

By an unfortunate mistake a set of slides that was thought would be particularly interesting—set of Korean views by Mr. T. Hayashi, of the Japanese legation in that country—arrived too late to be shown. These, however, and a number of other additional interesting slides will be available for the Yokohama Exhibition, the date of which will be duly announced in these columns.

ONE HUNDRED DOLLARS IN GOLD TO BE PAID IN PRIZES FOR PHOTOGRAPHS OF BAD ROADS.

To stimulate the collection of photographs to be used in showing the need of improved roads in the United States, the Connecticut division joins the New York division in offering three prizes aggregating to $100 in gold, as follows:

1. One prize of $50 (gold) for the best collection of not less than three photographs.

2. One prize of $30 (gold) for the second best collection of not less than three photographs.

3. One prize of $20 (gold) for the third best collection of not less than three photographs.

This offer is made subject to the following conditions and suggestions which should be observed:

All photographs must be accompanied by the negatives, unless the latter have been destroyed.

Competition will close on the first day of July, 1892, and all photographs must be submitted on or before that date.

Photographs must be confined to such subjects as most strongly illustrate the unfitness of the present public roads (especially the common "dirt" roads) used as public highways.

To aid you by a suggestion we will say we want:

Photographs showing the common spectacle of the farmer's team and wagon, hub-deep and knee-deep in the muddy road.

Photographs showing rough, rutty and muddy roads in their worst condition.

"Stuck in the mud" photographs, showing the farmer or merchant with his loaded wagon vainly trying to drive his patient team and load out of the inevitable mud hole.

Photographs showing the everyday breakdown caused by rough or muddy roads or steep grades.

Photographs showing smooth, hard-surfaced roads and (if possible) teams hauling loads over the same.

And the other pictures illustrating the goodness of good roads and the badness of bad roads. Your opportunities and observation will suggest the proper thing in this line.

Each photograph must be accompanied by a full statement of particulars, giving date, location, etc., by which the picture may be identified. Blanks for this purpose will be supplied on application.

All photographs and negatives submitted must be sent marked with a fictitious name pseudonym, by which the competitor is to be known until the date of award. Each competitor must also send a sealed envelope containing his or her real name and address, and marked upon the outside with the fictitious name of the competitor.

All photographs and negatives submitted in this competition are to remain the permanent joint property of the New York and Connecticut Divisions of the League of American Wheelmen. At least ten persons must compete in order to insure the reward here offered.

In deciding upon the respective merits of the work submitted, the following points will be considered.

1. The subject of the photograph and its force in illustrating the necessity for better roads.

2. Clearness and general excellence of photographic work.

3. Location (giving preference to those views which show bad roads in important counties, suburbs of large towns, etc.).

4. Size of photograph. The question of size will be considered least and last of all. Any competitor may send more than three photographs if desired. The committee will select the *three best* of those submitted by each competitor.

The prizes will be awarded before July 15, 1892, by a committee to be selected by the Chief Consuls of State Divisions of New York and Connecticut. All communications will be in every respect confidentially treated, and further information will be furnished on application to either of the undersigned, to whom all photographs and negatives should be sent.

ISAAC B. POTTER, Chairman Roads Imp. Com., N. Y. State Div., League of American Wheelmen, 197 Potter Building, New York, N. Y.

CHARLES L. BURDETT, Chairman Roads Imp. Com. Connecticut State Div., League of American Wheelmen, Hartford, Conn.

THE PHOTOGRAPHIC TIMES.

AN ILLUSTRATED WEEKLY JOURNAL DEVOTED TO THE ART, SCIENCE AND ADVANCEMENT OF PHOTOGRAPHY.

Issued every Friday.

W. I. LINCOLN ADAMS, Editor.

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Discount for term contracts.

Copy for advertisements must be received at office one week in advance of the day of publication. Advertisers receive a copy of the journal free, to certify the correctness of the insertion.
All literary contributions, correspondence, "Queries," etc., should be addressed to THE EDITOR; all advertising matter to the Publishers,

THE PHOTOGRAPHIC TIMES PUBLISHING ASSOCIATION,
423 Broome Street, New York.

Commercial Intelligence.

You can depend on our using "The Times," as we know its power.

E. W. NEWCOMB & CO.,
Dealers in Photographic Apparatus and Supplies,
New York City.

I received a copy of "The Photographic Times," with which I am greatly pleased.

A. M. LAW, Spartanburgh, S. C.

I still find that I cannot get along without "The Times."

C. H. MILLER, Philadelphia.

Boston, March 29, 1892.

Friend Pelgrift:

The "Henry Clay" Camera came to hand. It is "a dandy." I am more than delighted. When I go away I will take it, if I am compelled to leave my "grip" home. Offer my thanks to Mr. Adams, and a large share for yourself.

Yours truly,

W. H. ROBEY.

"We have always found your journal an excellent medium to advertise in; like the American Annual, it should be more patronized by the dealers. We think we can say we have received more inquiries from our notice in your publication than in any others we advertise in. This is not taffy."

W. P. BUCHANAN,
Successor to Buchanan, Bromley & Co.
Philadelphia, Pa.

The Scovill & Adams Co. report a complete stock of Grit Varnish, which is considered the best medium in the market, for producing a superior surface on negatives to take the retouching pencil.

It is sold in 6-ounce bottles at 40 cents per bottle.

A FIVE-DOLLAR CAMERA.

Having purchased the entire production of the New England Hawk Hand-Cameras from the manufacturers, we are now prepared to place this instrument on the market at the remarkably low price of $5 each. The reputation of this camera is beyond question; it will make pictures 4 x 5 size, either snap-shot or on a tripod, equal to the best. Satisfaction guaranteed or money refunded.

THE SCOVILL & ADAMS CO.

Referring to our note concerning Carbutt's fluid-stripping medium under Commercial Intelligence, in the April 1st issue, we wish to correct the price which slipped into that notice by error. It is $1 per pint bottle, instead of 90 cents, as there stated.

A special gelatine is now manufactured in France and in England for vitrified photographs, and it gives most satisfactory results in the hands of those who have tried it as a medium to hold the ceramic colors.

The Scovill & Adams Co., always in search of novelties, of everything which can be useful to their customers, have imported a few pounds of it, which can be had at a very reasonable price.

This gelatine has rendered possible a process similar to the carbon which will have a great success, the manipulations being simplicity itself.

Highly pleased with it.—"I have examined the 5 x 7 Henry Clay Camera and I must say I am highly pleased with it."—CHAS. L. MITCHELL, M. D., Philadelphia, Pa.

"**It** ('Lantern-Slides, and How to Make Them,') **is** without doubt the best manual there is for the slide maker, for it is written by a practical man, and the prince of hand camerists."—*Wilson's Photographic Magazine.*

If you have anything to buy, sell or exchange, advertise it in THE PHOTOGRAPHIC TIMES. It will pay you. (See note above by W. P. Buchanan.)

A Western Photographer writes (on account of economy): "I tell you candidly that I should immediately discontinue my subscription could I do so without injury to myself, but I need the information you manage to scrape together."

Our advertising patronage has grown to such an extent that we have been compelled to increase the number of our advertising pages this week by four.

"It Stands at the Head."—Engraving and photography have come to be twin arts. Admiration for one induces a like sentiment for the other and one of the most welcome exchanges that comes to our table is THE PHOTOGRAPHIC TIMES. For the enthusiastic amateur or the professional, it is full of valuable suggestions to the art of photography, while for those who love the beautiful we commend its handsome engravures, one of which prefaces its pages each week. It stands at the head of the photographic journals of the country.—*Illustrated Pacific States* for March.

Business Notices.

FOR SALE.—$400.00 cash; gallery established 1881, on Main Street, Norfolk, Va.; must be sold by May 1st. Address owner, I. D. BOYCE,
1113 F Street, Washington, D. C.

RAPID RECTILINEAR LENSES AT COST.—4 x 5, $5; 5x7, $12; 5x8, $7; 6½x8½, $8; 8x10, $12; 10x12, $18; 11x14, $24. Write for price list.
W. P. BUCHANAN, Importer, Philadelphia.

BACK NUMBERS OF SUN AND SHADE, including Nos. 3, 10, 11 and later issues, in perfect condition, 25 cents each. Regular price is 40 cents, and the earlier numbers are at a premium. THE PHOTOGRAPHIC TIMES PUBLISHING ASSOCIATION.

FOR SALE.—4x5 Waterbury Detective, and 5x7 Henry Clay Cameras.
H. COUTANT, 15 Wall St., New York City.

BARGAINS IN ROSS LENSES.—Ross 6-in. Portable Symmetrical Lens, as good as new; cost $32, sell for $25. Ross No. 3 Carte-de-Visite Lens, 6-in. eq. focus; cost $96, sell for $48. Ross' Carte Lenses are celebrated for their extreme rapidity and exquisite defining power.
F. B. M., Lock Box 368,
New York City.

FOR SALE.—Are you looking for a good opportunity? Then get particulars by letter.
KRONEBERGER, Danville, Va.

FOR SALE.—Gallery on Pennsylvania Avenue, Washington, D. C.; complete outfit; large number of negatives; only for cash. Address, care of Mr. W. B. Brittain,
CARRIER No. 44, City P. O.

FELT BACKGROUNDS, $1.50 per yard; a 6 ft. x 6 ft. ground only $3, by mail $3.35.
THE SCOVILL & ADAMS CO.

PHOTOGRAPHIC BROKERAGE.—Established especially to furnish carefully selected outfits of any make or grade to those living at a distance. Address
C. M. BROCKWAY, 33 Worth St., New York.

HAND CAMERAS WORTH HAVING.—The Premier, either 4x5 or 5x7 sizes, for plates or roll-holders; prices, $18 to $55. The Montauk, 4x5 or 5x7 sizes, for plates or roll-holders; prices, $25 to $55. Address,
C. M. BROCKWAY, 33 Worth St., New York.

GALLERY FOR SALE.—In a city of 13,000; only $300. Address SCHAFFER BROS.,
275 Main St., Poughkeepsie, N. Y.

PHOTO STUDIO AND ART STORE FOR SALE.—All on the ground floor. Address ART STORE,
care THE PHOTOGRAPHIC TIMES, N.Y.

THE UNDERSIGNED has a few 6x5 Dallmeyer Rapid Rectilinear Lenses which he will sell for 20 per cent. from list prices. These lenses are a late importation and are all warranted. Address "TOURIST,"
care The Scovill & Adams Co.

THE FINEST Platinotype Solar Enlargements and contact prints, in black and sepia, are made by
THE PLATINOTYPE CO.,
39 South 10th St., Philadelphia.
Send for price lists.

CORRESPONDENCE SOLICITED by a photographer who intends visiting Mexico and the Northwest, or any special place to which it is desired he should go, for the purpose of making stereoscopic or other photographs. Correspondence solicited with a view of selling the right to publish such negatives as he shall make or the negatives themselves. H. MILLER,
578 Kosciusko St., Brooklyn.

WANTED.—Local and traveling agents to sell Photographers' Paste, Mucilage and Gums to the trade. Liberal commissions. THE ARABOL MFG. CO.,
13 Gold Street, New York.

A MATCHED PAIR OF ORIGINAL SINGLE Dallmeyer Lenses for stereoscopic work for sale at a bargain—$25 C.O.D; or remit the amount in check, money order or postal note. "MATCHED PAIR,"
Care of THE PHOTOGRAPHIC TIMES.

LANTERN-SLIDES AND HOW TO MAKE THEM, by A. R. DRESSER.—A new book, very complete and thoroughly practical. Only 25 cents. Sent postpaid on receipt of price by THE SCOVILL & ADAMS CO.

A SPLENDID OPPORTUNITY FOR A FIRST-CLASS PHOTOGRAPHER.—In the large and beautiful city of Guadalajara, with 120,000 inhabitants—the second city in Mexico. For sale or to rent—after having made its owner a fortune—a photographic gallery beautifully situated in the centre of the city, completely furnished with all modern appliances. To be sold at cost price, $4,000, or for rent at $150 per month, including living apartments. First-class custom, on the basis of $12 for Imperials. For further particulars, address Sr. Lic. J. MIGUEL G. HERMOSILLO, Apartado 12, Guadalajara; or O. DE LA MORA, 2da San Francisco, 4, Fotógrafo, Mexico City.

A NEW GUNDLACH LENS, covering a 5 x 8 plate, sharp to the edges, for sale cheap. Regular price $24. Will send C.O.D., subject to examination, for $18.
Address C.O.D., care THE PHOTOGRAPHIC TIMES.

THE finest-fitted Dark-Rooms in the United States are open for the accommodation of Amateurs, at 122 W. 36th Street. DARLING, Photographer.

THE ELDORADO BENCH AND WALL COMBINATION makes eight different combinations, every one of which is effective and artistic. Just introduced by THE SCOVILL & ADAMS CO. Price $20.00.

"THE PHOTOGRAPHERS' BOOK OF PRACTICAL FORMULÆ."—In order to make way for the SECOND EDITION of this popular book we make the following prices on those now in stock: Paper covers, 30 cents each; cloth, 60 cents each. Never before has a book of such great value been offered for so little money.
R. H. MORAN,
396 Broome Street, New York.

SEND FOR LIST of new "M. & V." Lenses to THE SCOVILL & ADAMS CO.

A SURE WAY TO PREVENT BLISTERS.—Use Haworth's Sensitized Paper. It won't blister. Spalding has it, so have Obrig Camera Co., and Z. T. Benson.
JOHN HAWORTH, Manufacturer, Phila.

NO FUMING, NO BLISTERS.—Experiment with all the "papers" advertised, and learn. But when you want to make choice, spotless prints use WISSAHICKON SENSITIZED ALBUMEN PAPER. Tone it in compound bath and squeegee on ferro plate, if you like. Send 2 cent stamp for 4x5 sample to JOHN HAWORTH,
641 Arch Street, Philadelphia.

GRIT VARNISH.—The best retouching medium in the market; 6-ounce bottle, 40 cts.
THE SCOVILL & ADAMS CO.

LANGILL. 10 East 14th Street, makes all kinds of outdoor negatives. Portrait photographers will do well to consult him when such is required. First prize for Architectural photographs, P. A. of A.

PHOTOGRAPH GALLERY FOR SALE OR TO RENT.—City 15,000; rent $10 per month; established three years; price, $700; only sold as the owner has to hire a man to run it. Cabinets $3.50 per dozen; ten backgrounds. A. E. F., 5 Essex Street, Newburyport, Mass.

A BARGAIN.—A No. 6 Gray's Periscope Lens in first-class condition. List price, $22.00. Will sell for $15.00. Spot cash. Address LENS BARGAIN, care THE PHOTOGRAPHIC TIMES.

WANTED.—A second-hand 18 x 22 Camera and Lens, in good condition. Address
A. H. BROMLEY, JR. & CO.,
1520 Market St., Philadelphia.

FLASH-LIGHTS AND HOW TO TAKE THEM! A complete treatise on Flash-Light work. Fully illustrated by Louis Clarence Bennett. Price, 50 cents, Order a copy now from THE SCOVILL & ADAMS CO.

THE PLATINOTYPE.

(PATENTED.)

Photographers can increase their business during the holidays by advocating the Platinotype.

Send 30 cents for a specimen print, portrait or landscape, on our new heavy India Tint Mounts.

WILLIS & CLEMENTS, Patentees,
39 South 10th St. Philadelphia.

PARA-AMIDOPHENOL HYDROCHLORATE.
THE DEVELOPING AGENT OF THE FUTURE.

With para-amidophenol there is no staining of the film, as with eikonogen and hydrochinon when development is prolonged, absolute transparency and opacity is secured, and the time of exposure is reduced about 30 per cent. without injury to half-tones and middle-tints.

FORMULA FOR DEVELOPER.

Para-amidophenol (pure)	100 grains
Sodium sulphite (crystals)	3 ounces
Potassium carbonate	1½ ounces
Water	32 ounces

FOR USE.—Take 1 ounce of the above solution and from 2 to 4 ounces of water, according to the length of exposure.

The stronger the solution the greater the intensity of the resulting negative; the more diluted the solution the greater softness and more detail.

PURE PARA-AMIDOPHENOL HYDROCHLORATE,
IN ONE-HALF OUNCE BOTTLES,
$1 per bottle.
THE SCOVILL & ADAMS CO.

Employment Offered and Wanted.

(These advertisements are inserted free of cost to photographers out of employment, in order to help them find situations.)

SITUATIONS OFFERED.

WANTED.—Two draughtsmen for pen-and-ink rendering from photos and natural objects on Bristol. Must be able to do free-hand lettering accurately and rapidly. Send stamp for sample page showing class of work required to M. THOMSON-HOUSTON ELECTRIC CO., Lynn, Mass.

An operator of experience; state wages expected and send samples. Box 44, Wilmington, N. C.

NOT A LOTTERY SCHEME.

$100.00 Cash in Prizes,

GIVEN BY

The Photo American.

If you will send **TEN CENTS** in coin or stamps you will learn all the particulars. It will also entitle you to compete, besides make you acquainted with the **Cheapest** and **Best**

Illustrated Photographic Monthly

published.

$1.00 PER YEAR.

THE PHOTOGRAPHIC TIMES and PHOTO AMERICAN together for $5 per year.

C. H. LOEBER,
111 Nassau Street, N.Y.

Be sure to mention this paper.

THE CHAUTAUQUA School of Photography.

The term of the local class 1891-92 closes on Saturday, April 30th.

The practising class will open on the Assembly Grounds on or before July 1st, and will remain in session till the first week in September.

Subjects of Instruction.—The modern gelatine processes in all their bearings, mainly orthochromatic methods by timed and instantaneous exposures.

Daily practice in studio, field and laboratory.

Printing Methods. — Albumen, Matt-Surface Paper, Chloride of Silver, Gelatine and Collodion, Bromide of Silver and Kallitype paper.

Especial attention will be paid to the making of lantern slides.

TUITION FEES.

For one course of ten lessons	$5 00
For one-half course of five lessons	3 00
Special lessons	1 00

Independent of photographic materials and books.

Advanced students will please to bring with them Camera, Lens, Plate-holders and Tripods. Utensils are furnished by the school.

Beginners may work with the apparatus of the school, without extra charge.

The Corresponding Class may be joined at any time.

For particulars apply to

PROF. CHAS. EHRMANN,
423 Broome St., New York.

And after June 24th,
CHAUTAUQUA ASSEMBLY GROUNDS, N. Y.

Solid Trains between New York and Chicago

VIA CHAUTAUQUA LAKE OR NIAGARA FALLS.

An Enchanting Panorama of Mountains, Forests and Streams.

The Delaware Division of the "Erie," between Port Jervis and Susquehanna, is a paradise for Amateur Photographers.

D. I. ROBERTS, Gen'l Passenger Agent.

CONTINUOUS BACKGROUNDS

Shown in Photographs with Subjects, in our new Sample Book.

Also the best and most complete line of accessories made.

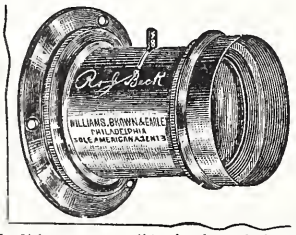
J. W. BRYANT CO.,
La Porte, Ind., U.S.A.

S. P. C. EIKOQUINOL DEVELOPER.—This "ne plus ultra" developer for timed and instantaneous exposures, lantern slides and all other kinds of transparencies, photo-mechanical work and bromide paper prints is now in stock and for sale at 35 cents per bottle of 8 ounces. No other developer is now used by the members of Chautauqua School of Photography; no other has attained to equally fine results.

THE SCOVILL & ADAMS CO.,
423 Broome Street, New York.

If you are thinking of Purchasing a PHOTOGRAPHIC CAMERA do not fail to write us for prices. If you wish to get SUPERB RESULTS get a

BECK LENS



Mr. JNO. C. HEMMENT, Photographer to *Frank Leslie's*, states: "It is the only lens which will do my work."

WILLIAMS, BROWN & EARLE,

PHOTOGRAPHIC SUPPLIES AND PRINTING,

Northeast corner *10th and Chestnut Sts.,* Philadelphia.

Sole American Agents for the Beck Lens.

Correspondence Solicited.

THE NEW KODAKS.

WE HAVE THEM!! $6.00 TO $25.00.

They can be loaded in the *daylight*, and we give full and careful personal instructions gratis. We develop, print and mount in albums at Eastman's prices. Only *first-class* work turned out. THE OBRIG CAMERA CO.
163 Broadway, New York.

WANTED.—Vols. 1, 2, 4, 5, 7, 8, 10, 12, 13, 17, 18 and 19 of THE PHOTOGRAPHIC TIMES, bound or unbound. THE PHOTOGRAPHIC TIMES PUBLISHING ASSOCIATION.

ARTISTIC LANDSCAPES FROM NATURE,

IN PHOTOGRAVURE,

FROM PHOTOGRAPHIC NEGATIVES

Representing the Four Seasons.

Printed on extra heavy plate paper, 11x14 inches in size

SUITABLE FOR FRAMING.

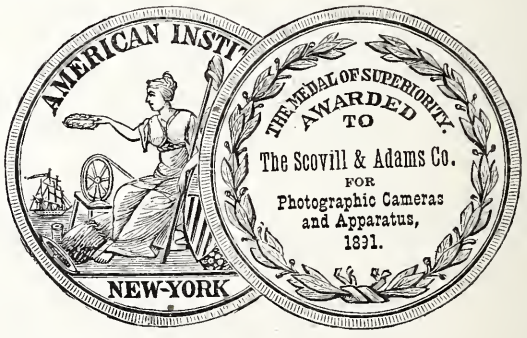
What Mr. George Inness, America's greatest landscape painter, says of these Photogravures:—"*They are very charming, and should prove extremely useful in the development of the landscape art of our country.*"

Price, 50 Cents each.
The Set of Four, $1.50.

Sent postpaid on receipt of price by

THE MONTCLAIR PHOTOGRAVURE PUBLISHING CO.,
49 PARK STREET, MONTCLAIR, N. J.

The Special Bronze Medal of Superiority, awarded by the American Institute to The Scovill & Adams Co.



for photographic cameras and apparatus, 1891.

PORTE-FEUILLE CARDS.

The cards for these Albums may be quickly and securely attached to the guards after the prints are mounted and burnished.

Price-list, including 25 sheets of Collins' best quality White Cards:

No. 2, 10x12 for 6½x 8½ Photographs.....$2 00
" 3, 11x14 for 8 x10 " 2 25

Price-list, including 25 sheets of Collins' White Muslin-Back Cards:

No. 5, 10x12 for 6½x 8½ Photographs.. .....$2 00
" 6, 11x14 for 8 x10 " 2 25

THE SCOVILL & ADAMS CO.,
423 Broome Street, New York.

BLUE PAPER.

A *good* article in this line is always hard to find. The *package* paper is variable and not to be relied upon. The motive of this little "Ad." is to tell you of our *special* Blue Paper. It is made fresh every day, on imported paper; is 50 per cent. cheaper than other papers, and withal is the best. Per yard (27 inches wide), cut to any size, 25c. Send 5c. for sample. THE OBRIG CAMERA CO.,
163 Broadway, New York.

PHOTOGRAPHIC BOOKS FOR SALE OR EXCHANGE,

By C. W. Canfield,

1321 Broadway, New York.

Photographie par Emulsion Sensible. A. Chardon, Paris, 1880 ..... $0 10
American Annual, 1887, cloth 50
" " 1888, " 50
" " 1890, " 50
Photography. Rob't Hunt, American Edition. New York, 1852. pp. 270, cloth, damaged (2 copies) 25
The Porcelain Picture. Towler, New York, 1865. Paper, pp. 47..... 25
Orr's Circle of the Sciences, Vol VII. (contains "The Photographic Art," by James Martin, 204 pp.). London, R. Griffin & Co., 1860. Cloth, 12mo, pp. 574..... 50
The Practice of Photography, by Robert Hunt. London, R. Griffin & Co , 1857. Limp cloth, pp. 126. 25
History of Photography, Tissandier, translated by Thomson. London, Sampson Low & Co., 1876. Cloth, 322 pp. (binding stained)..... 25
The Carbon Process. Drummond, New York, 1868. pp. 113, paper..... 10
Photo-micrographs and How to Make Them. Sternberg, Boston, 1883 (pub. at $3.50; good copy).. 1 00
American Annual Index, 1891. 05
Philadelphia Photographer, Vol. I..... 1 00
" " " II..... 1 00

Odd Numbers and Volumes of Photographic Journals.

Seely's American Journal of Photography, Vol. VI., Nos. 1–19 (July, 1863, to April, 1864).

Humphrey's Journal, Vol. XV., 1863, Nos. 10, 15, 16, 20, 21, 22, 23, 24.

Photographische Monatshefte, Nos. 7–19 (December, 1862, to December, 1863).

The Photographic Times, Vols. III., VI., IX., XI. and XIV. Bound in red cloth, $1 each; regular price, $3.

American Journal of Photography (McCollin), Vol. V., No. 2; Vol. XI. (1890), complete, except Nos. 1 and 4. Vol. XII., except January, February and June.

Bulletin de la Société Française de Photographie. 2d series. Vol. VII., Nos. 1–6.

Anthony's Bulletin, Vol. XIX. (1888), complete, Nos. 1–24.

The Practical Photographer (English), Vols. I. and II. (except No. 18), 1890, 1891.

A few *very* odd numbers of Photographic Notes, Daguerreian Journal, Photographic and Fine Art Journal, Magic Lantern Journal, Photographic Herald, etc.

100

Odd Volumes

OF

THE PHOTOGRAPHIC TIMES

Published between 1873 and 1884, each volume covering one year, bound in cloth with gilt stamp, are offered for sale at ONE DOLLAR A VOLUME, express charges to be paid by purchaser. Address The Photographic Times Publishing Association, 423 Broome Street, New York.

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SECOND EDITION.

A Collection of Photogravures from the Best Representative Photographic Negatives by Leading Photographic Artists.

THE COLLECTION INCLUDES:

" Dawn and Sunset"..... H. P. Robinson
" Childhood"..... H. McMichael
" As Age Steals On"..... J. F. Ryder
" A Portrait Study"..... B. J. Falk
' Solid Comfort"..... John E. Dumont
" Ophelia"..... H. P. Robinson
" No Barrier"..... F. A. Jackson
" El Capitan"..... W. H. Jackson
" Still Waters"..... J. J. Montgomery
" Surf"..... James F. Cowee
" A Horse Race"..... George Barker
" Hi, Mister, may we have some Apples?"..... Geo. B. Wood

Printed on Japan Paper, Mounted on Boards. Size, 11x14, in Ornamental Portfolio.

Price, - - - - - $3.00.

Sent, Postpaid, on Receipt of Price, by

THE SCOVILL & ADAMS CO.

PHOTOGRAPHIC DIRECTORY.

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Of PHOTOGRAPHIC GOODS, entirely complete and fully illustrated, will shortly be issued by

THE SCOVILL & ADAMS CO.

F. D. LANIER WALKER,

AMATEUR PHOTOGRAPHIC SUPPLIES.

18 John Street, New York City.

Successor to C. L. LITTLEWOOD & Co.

JOHN H. DALL,

PHOTOGRAPHIC SUPPLIES,

618 and 620 Clay Street,

Established in 1850. SAN FRANCISCO, CAL.

R. M. Davis. DENVER.

The only EXCLUSIVE Photo Stock House between the Missouri River and the Pacific Coast.

"HOW TO MAKE PHOTOGRAPHS."

Containing a descriptive Price List of all goods pertaining to Photography, sent free to any address on application to

THE SCOVILL & ADAMS CO.

Mail us 75 CENTS and we will send you by return post our No. 2 FLASH LAMP with magnesium, bulb and tubing all ready for use.

$1.50 WILL, in the same manner, purchase our No. 1 Lamp. The only satisfactory Flash-light apparatus in existence.

QUEEN & Co., Phila.

THE SCOVILL & ADAMS CO.,

Successors to

Photographic Department SCOVILL MANUF'G CO.

PHOTOGRAPHIC MATERIALS.

W. IRVING ADAMS, Pres't.
H. LITTLEJOHN, Sec'y.

Office and Salesrooms:
423 Broome Street, New York.

WHEN BUYING Photographic Cameras, be sure if you would have the best, that they are made by the AMERICAN OPTICAL COMPANY, New York, and are stamped on the front board for lens and frame for ground glass—"American Optical Co., New York.

GOVAN & CRAMPTON,

Successors to MINOTT M. GOVAN,

DEALERS IN PHOTOGRAPHIC SUPPLIES,

No. 5 Clinton Place, New York.
(Three doors from Broadway.)

FULLY ILLUSTRATED Catalogue and Price List mailed on application.

CARBUTT'S

EIKO-CUM-HYDRO DEVELOPER.

FOR SALE BY ALL DEALERS.

PANTAGRAPH LENSES,

QUEEN & CO., Phila.

PHOTOGRAPHIC BOOKS.

Send for the Scovill Catalogue of Photographic Books and Publications.
A new edition now ready.

PUBLICATION DEPARTMENT, THE SCOVILL & ADAMS CO.

FOR SALE CHEAP.

A newly fitted-up photographic gallery in Newark, N. J., doing a good business. Reason for selling, sickness of proprietor. This gallery is situated on best business block. Newark is a city of over 200,000 inhabitants. Price, $600. Address LEWIS G. GALLAGHER, 773 Broad St., Newark, N. J.

J. S. LOPEZ & CO.

O'Reilly 92, Apartado 213, Havana, Cuba.

Importers of Goods for Photographers, Engravers and Painters.

Editors of the "PHOTOGRAPHIC BULLETIN."

REFERENCES IN NEW YORK, THE SCOVILL & ADAMS CO.

FRANCAIS LENSES,

QUEEN & CO., Phila.

PHOTOGRAPHIC SUPPLIES.

TUCKER & BUTTS,

37 and 39 Court Street,
BUFFALO, N. Y.

Carbutt's Orthochromatic

DRY PLATES
AND CELLULOID FILMS (CUT SIZES).

Uniform, Reliable, Splendid Keeping Qualities,

COMBINED WITH A CORRECT RENDERING OF COLOR VALUES,

AND YET THE SAME PRICE AS PLAIN BROMIDE.

All contemplating a summer tour should place their orders with dealers early, to avoid the season's rush.

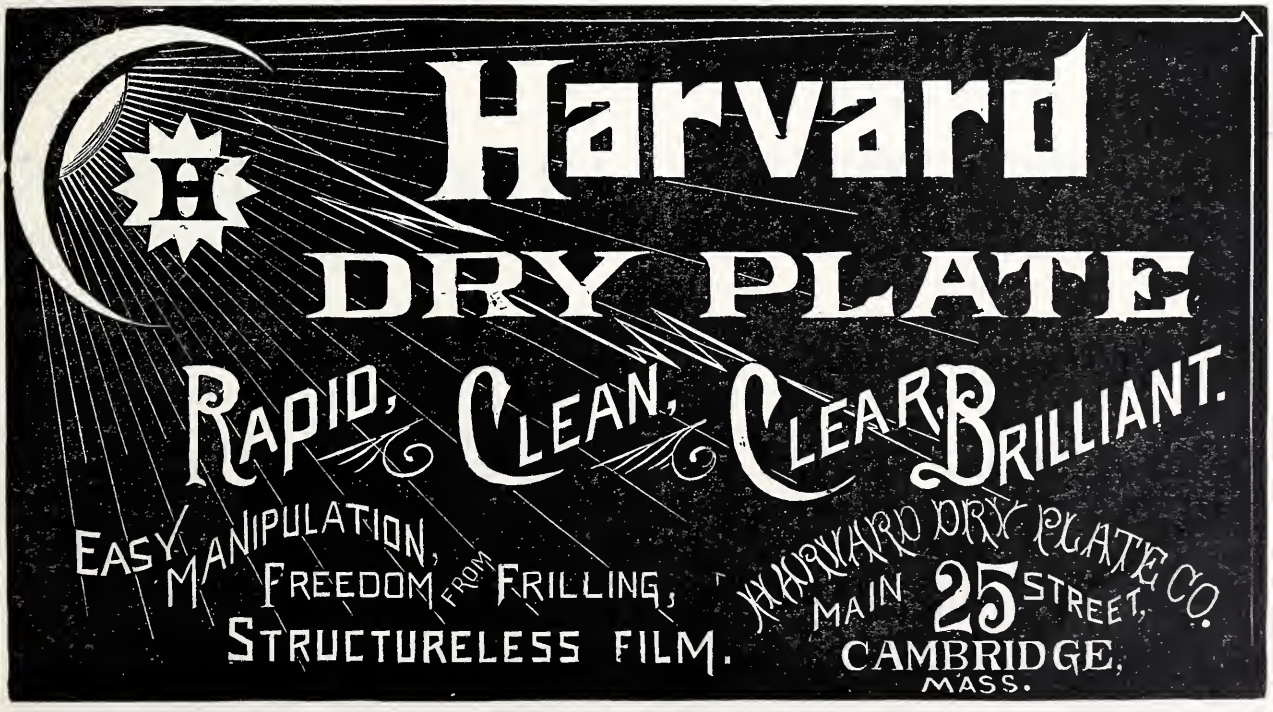
Carbutt's Dry Plates and Flexible Films are to be obtained from all dealers in photo materials. Send to factory for reduced Price List and list of brands.

Manufactured by JOHN CARBUTT,

(Pioneer Manufacturer of *Gelatino-Bromide* and *Orthochromatic Plates* in America.)

KEYSTONE DRY PLATE AND FILM WORKS.

WAYNE JUNCTION,
PHILADELPHIA



A full supply kept in stock by

THE SCOVILL & ADAMS COMPANY.

OLD ESTABLISHED

DEPOT and STOCK HOUSE,

PHOTOGRAPHIC MATERIALS AND SUPPLIES

OF ALL KINDS FOR

Professional and Amateur Photographers.

PROMPT ATTENTION GIVEN ALL ORDERS.

LOWEST PRICES, BEST GOODS.

Cameras, Amateur Outfits, Dry-Plates, Card Stock and Chemicals

☞ Dark-room for use of customers.

J. N. McDONNALD,

Opp. Union Depot Arcade, 544 Broadway, Albany, N. Y.

CATALOGUE ON APPLICATION.



MENTION PHOTO. TIMES.

BAUSCH & LOMB OPTICAL CO.,

Manufacturers of the Popular American Standard

RAPID UNIVERSAL LENSES,

for Group work in Studios and all outdoor work, and

ALVAN G. CLARK LENSES,

on both of which there has been a decided reduction in prices.

The New and Wonderful

ZEISS-ANASTIGMAT LENSES,

of which we are the Sole American Manufacturers. In three Series, for Studio, Architecture, Landscape and Copying.

DIAPHRAGM SHUTTER,

which stands without rival.

ROCHESTER, N. Y., P.O. Drawer 1033.

NEW YORK CITY, P. O. Box 432

Send for NEW CATALOGUE, Just Out.

CHAS. COOPER & CO.,

194 WORTH STREET,

NEW YORK.

MANUFACTURING

CHEMISTS

AND

REFINERS

OF

PHOTO WASTE,

WORKS AT

NEWARK, N. J.

CLEMONS' NEW MATT-SURFACE PAPER.

SOMETHING NEW UNDER THE SUN—A REVOLUTION IN THE ART OF MANUFACTURING.

After many years of scientific research a preparation for the salting of plain photographic paper has been discovered, by which method the finest printing results are obtainable. The advantages are apparent to all.

I.—Constant use will not discolor the silver bath.

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Full Assortment of White's Posing and Lighting Specialties.

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NOT THE CAMERA,

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Written expressly to help the beginner in perplexity.

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THE SCOVILL & ADAMS CO.,

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We claim that **The Semi-Centennial Camera Stand**

BECAUSE— **IS THE BEST.**

It is simple in construction and will not get out of order.

It will enable you to get your Camera within 13 inches of the floor, or as high as you wish from the floor.

It is fitted with turning casters, with rubber wheels. Strong, Rigid, Easy in Operation, and Ornamental in Appearance.

It is the invention of a practical photographer and is perfected in its details. WARRANTED PERFECT.

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MORRISON WIDE-ANGLE VIEW LENSES.



These lenses are absolutely rectilinear; they embrace an angle of 100 degrees, and are the most rapid *wide-angle* lenses made.

No. of Lens.	Diameter	Size of Plate.	Equivalent Focus.	Price.	
0..1	inch	3¼x4¼ inch	2½ inch	each, $20.00	
2..1	"	4 x 5 "	3½ "	" 25.00	
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4..1	"	5 x 8 "	5½ "	" 25.00	
5..1	"	6½x 8½ "	6½ "	" 25.00	
6..1	"	8 x10 "	8 "	" 30.00	
7..1½	"	11x14 "	10½ "	" 40.00	These 2 sizes will fit into 1 flange.
8..1½	"	14x17 "	14 "	" 50.00	
9..1½	"	17x20 "	17 "	" 60.00	These 3 sizes will fit into 1 flange.
10..1½	"	20x24 "	22 "	" 80.00	
11..1½	"	25x30 "	28 "	" 100.00	

☞ Nos. 1 to 6 are all made in matched pairs for stereoscopic work. The shorter-focused lenses are especially adapted for street and other views in confined situations. For general purposes, a pair of No. 5 lenses will be found most useful.

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A. M. Collins
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A PERFECT SUBSTITUTE FOR ALBUMEN PAPER.

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It does **not** stick, nor does the surface of the print rub off.

THE PERFECTED BRADFISCH TONING AND FIXING SOLUTION. is recommended for use with Aristotype Paper.

It works perfectly and is always clear.

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For LANTERN SLIDES, Window Transparencies, and Reproductions in Black-and-White.

These Plates make the most perfect Lantern Slides, either by contact printing by artificial light or by means of the camera from larger or smaller negatives and give, at will, either engraving black or rich warm purple tones; they are also specially suitable for reproductions of line subjects for photo-lithography, when used for this purpose with our improved Pyro Transparency Developer, they give any desired density with perfectly bare glass in the high lights.

Price, 3¼x3¼ (English Lantern Size), 75 cts. per doz.

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By means of this new Developer the most perfect Transparencies can be obtained on suitable Dry Plates with the greatest facility. It is the only Developer yet discovered which will produce (on Rapid Gelatine Plates) Lantern Slides of the highest class with RICH WARM TONES and perfectly clear glass in the highest lights.

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A practical little hand-book; very complete and instructive.

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CASWELL'S BACKGROUND HOLDER.

SOMETHING NEW UNDER THE SKYLIGHT
SCENES CHANGED IN HALF A MINUTE.

25 sold in April.
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HOW IT OPERATES:

A few turns of the upper crank rolls up the scene; the other one lowers it to its brackets.

Now the sliding roller supports are brought opposite another roll which is drawn into them, elevated and unrolled.

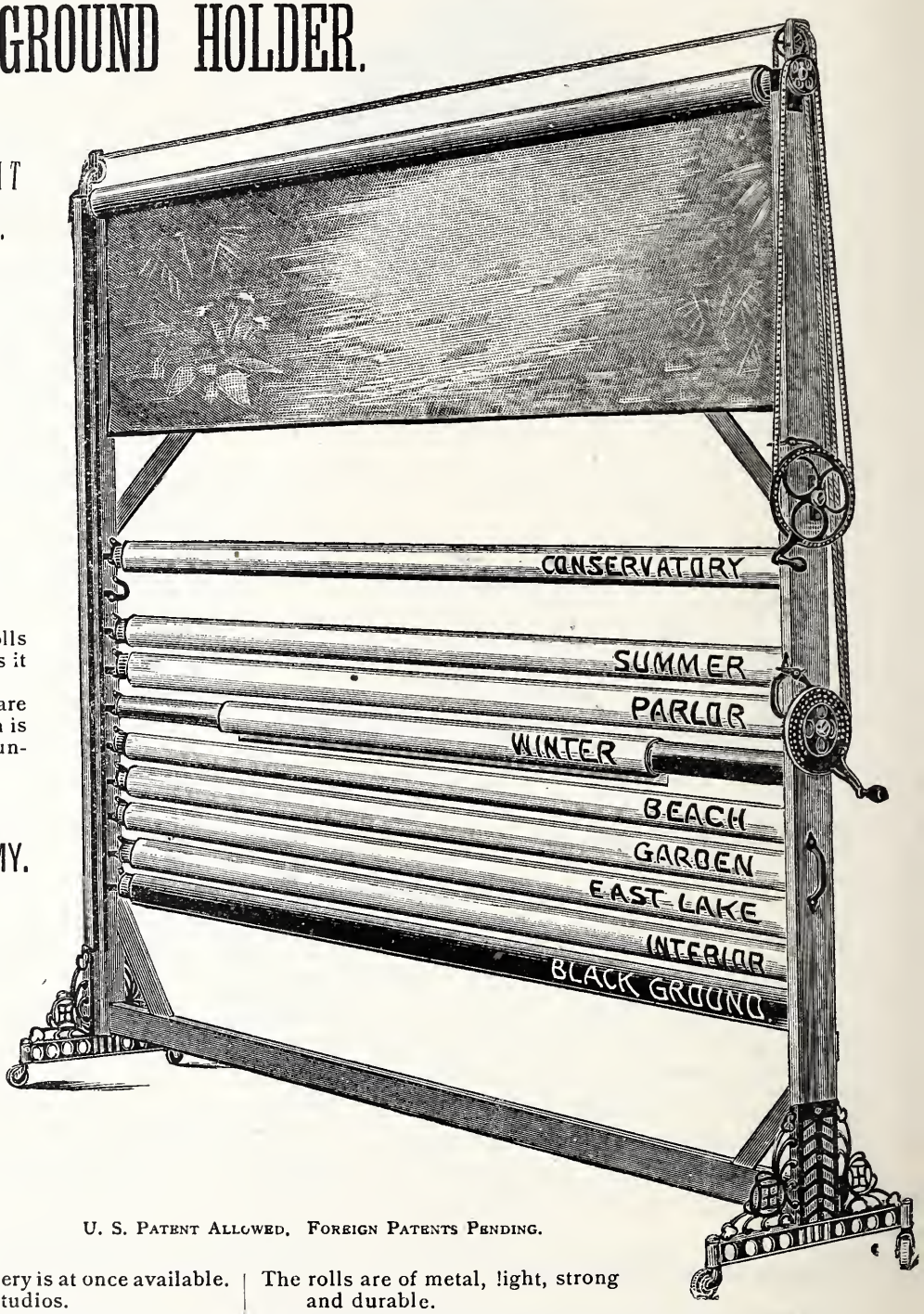
FULL OF PRACTICAL ECONOMY.

THIS IS THE PRICE:

$25,

INCLUDING ONE ROLL.

Extra Rolls, $2.50 each.



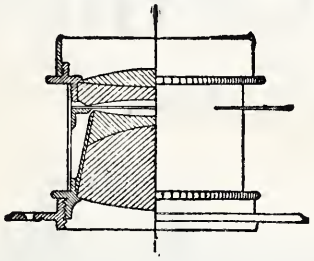
U. S. Patent Allowed. Foreign Patents Pending.

With this holder every piece of scenery is at once available.
It is a positive necessity for small studios.
It saves a sight of trouble to the busy operator.
It takes no more room than an ordinary frame.
You can raise or lower the ground to suit your subject.
It will roll the combination background and foreground.
You can lower your ground even with the carpet.
The scenery may be rolled up out of the way while sweeping.
It will roll all of your old backgrounds.
It preserves your scenery against scratching.
It is just the thing for felt bust grounds.
Grounds cannot unroll in brackets, nor while being elevated.
The weight being below the centre, it is not top-heavy.
Many of the castings are of malleable iron and can not break.
Manufactured by ALVIN C. CASWELL, Fitchburg, Mass.
For sale by all stock dealers.

The rolls are of metal, light, strong and durable.
A strip of strong cloth is locked into the seam of the roll.
The background is attached to this cloth by brass fasteners
It takes but a few minutes to properly hang your scenery.
It is impossible for the roll to fall from the machine.
It is a very easy matter to set the machine up.
The joints are halved and put together with screws.
Frame of whitewood, finely finished in cherry.
The mechanical construction is very simple.
There is nothing about it liable to get out of order.
It is almost noiseless in its working.
The castings are double japanned.
Weight, boxed, ready for shipment, 125 pounds.
Securely packed in the knock-down.

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THE UNRIVALED STEINHEIL LENSES.

SERIES  II.

The best and most rapid lens for general work for both professional and amateur photographers. Remarkable for its powerful and even illumination and sharpness.

Series III. The prototype of all rapid symmetrical and rectilinear combinations. Guaranteed equal to the most expensive lenses of its kind.

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Felt Backgrounds.

The Scovill & Adams' Plain Felt Background, recently introduced, is a great boon to all Photographers, both Professional and Amateur.

It is made of strong, thick and even stock, and is of an agreeable neutral drab color. It is especially suitable for vignetting. The texture of the cloth absorbs instead of reflecting light, and thus produces soft effects, and agreeable depth in print. The liability of defacement by water stains is obviated.

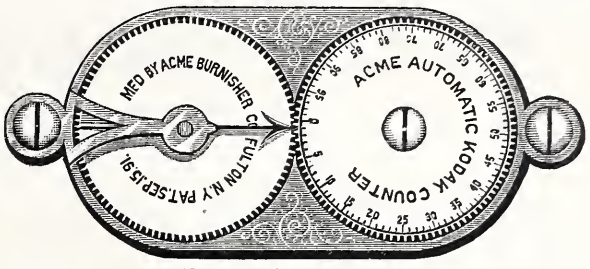
The prices of these grounds are as follows:

4 x 6 feet	$2.50
5 x 6 "	2.75
6 x 6 "	3.00
6 x 7 "	3.50
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These sizes may be sent by mail on receipt of 35c. extra.

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ACME
AUTOMATIC KODAK COUNTER.



(Patented Sept. 15, 1891.)

SIMPLE. **DURABLE.**

ANY ONE CAN ATTACH THEM IN A MOMENT.
ONLY A MOMENT REQUIRED.
WORKS PERFECTLY.
REGISTERS AUTOMATICALLY
ALL EXPOSURES MADE.
TELLS EXPOSURES REMAINING ON ROLL.
GUARANTEED IN EVERY PARTICULAR.

PRICE LIST:
No. 1—For Regular Kodaks.....$2 00
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FULTON, N. Y.

"The Developer of the Future."

S. P. C.
Para-Amidophenol Developer

IN ONE SOLUTION.

An eight (8) ounce bottle containing developer sufficient for developing 100 5 x 8 negatives.

PRICE, 50 CENTS.

For sale by all dealers in Photographic Materials
AND BY
THE SCOVILL & ADAMS CO.

THE 5 x 7 HENRY CLAY
Stereoscopic Camera
FOR TRIPOD AND HAND USE.

It is commonly known that of all pictures, those which are arranged to give the stereoscopic effect when viewed in a stereoscope, convey the true impression of perspective and solidity. It seems strange, indeed, that of the myriads of instantaneous pictures made, so few are taken with reference to their future use in connection with the stereoscope, *for it is only by that means that the idea of perspective and solidity can be conveyed.* We can only assign as the reason the present almost universal use of hand cameras, and that none of them have, up to this time, been arranged for stereoscopic pictures.

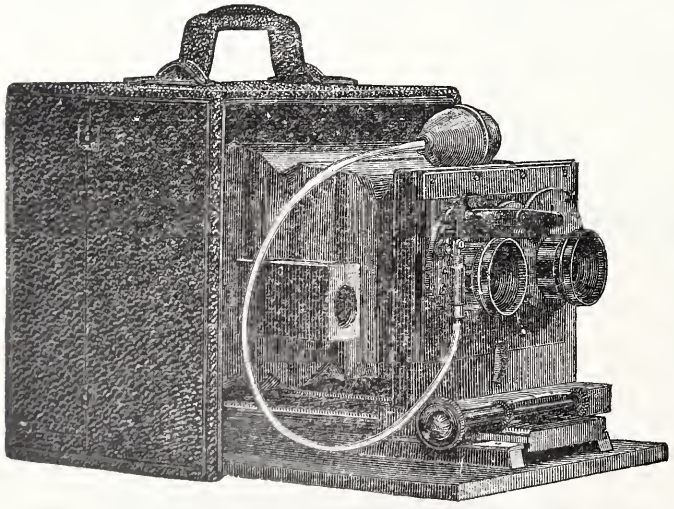
There is a much over-worked phrase—"the long felt want," but we think that just that, literally, will be met by the new hand camera which the American Optical Company have just finished.



The first illustration shows one of these cameras closed, and you will observe there is no external opening for finder, lens or anything to indicate that the leather-covered case contains the appliances which go to make up an instantaneous camera.

This camera measures eight inches high, nine inches long and five inches wide ; its weight is about five pounds. It has a screw plate underneath, so that it may be used with a tripod. It has a door in the back of the case, and through that opening the image thrown by the lenses may be seen on the ground-glass focusing screen.

The second illustration shows the appearance of the camera when open. The pair of Optimus Lenses is fitted with a triplex stereoscopic shutter with pneumatic release, made by the Prosch Manufacturing Company.



The camera is furnished with a focusing scale and a reversible finder. Either half of the stereo. negatives when cut in two are of a size suitable for making lantern slides from.

This camera may also be used to take a single picture of the size of the ground-glass focusing screen (5x7 inches), either vertical or horizontal. In the former case the reversible finder comes into use. The septum which divides the camera inside is arranged so that it may be easily taken out, the stereo. lenses are mounted on a removable front, and an extra front is furnished on which may be placed any lens of not over seven and a half inches equivalent focus.

PRICE, with a pair of Optimus Lenses and Prosch Stereoscopic Shutter with Pneumatic Release, ... $75.00

This camera can also be made with vertical sliding and swing front. By means of the former the proportion of sky and foreground may be adjusted ; the latter permits the taking of subjects which may be either above or below the level of the camera and still preserve the lines vertical.

PRICE, with a pair of Optimus Lenses and Prosch Stereoscopic Shutter with Pneumatic Release, and with vertical sliding and swing front, . . $80.00

A 5x7 Roll Holder for Transparent Films can be furnished with either of the above forms of this camera for $15.00 additional. This addition would make the case about two inches wider and one-quarter inch higher.

THE SCOVILL & ADAMS CO., 423 Broome Street, New York.

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KALLITYPE.—A new process recently discovered, yielding prints of a beautiful black tone with a mat surface

PERMANENT, RAPID, SIMPLE, CHEAP.

Send for price-list and toning directions.

TRY ALSO CULLEN'S NEW MAT SURFACE PAPER.
CULLEN'S OBERNETTER PAPER.
CULLEN'S BLUE PROCESS PAPER.
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SUPPLIES AND APPARATUS OF EVERY DESCRIPTION.
Sole Agent for Kallitype, New Mat Surface, Obernetter and Manhattan papers.

W. C. CULLEN, 61 William St., New York.

AMATEURS, ATTENTION!



Please remember that in speed and every desirable optical quality no lenses yet constructed can rival

Voigtländer's Euryscope Lenses,

which are made in SEVEN different styles.

BENJ. FRENCH & CO.,
319 Washington St. BOSTON, MASS.

Revised price-List sent on application.
Correspondence solicited.



Patented July 17, 1887.

STAMP PORTRAITS.

These are the only stamp portraits that are gummed and perforated, and being the exact size of ordinary U. S. postage stamps, photographers and others will find them an interesting novelty in advertising their business, as they can be mounted on business and visiting cards, letter-heads, etc.

We also make a size four times larger than the stamp pictures Send for samples and prices, which will be furnished on application.

Address
H. A. HYATT,
Sole Agent.
S. E. Cor. 8th & Locust Sts.
St. Louis, Mo.

A Five Dollar Hand-Camera.

"The New England Hawk."

Having purchased the entire production of the New England Hawk Hand-Cameras from the manufacturers, we are now prepared to place this instrument on the market at the remarkable low price of FIVE DOLLARS each. The reputation of this Camera is beyond question; it will make pictures 4x5 size, either snap-shot or on a tripod, equal to the best.

Satisfaction guaranteed or money refunded

Sent to any address, securely packed, on receipt of price, or C. O. D., by

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423 Broome St., New York City.

THE SCOVILL MAGNESIUM COMPOUND

IS ENTIRELY FREE FROM POISONOUS INGREDIENTS.

THE GENUINE ARE IN SILVER WRAPPERS.

In order to demonstrate this, quantities have been eaten at various times. We have often pounded it in a mortar to show that it does not explode.

Price of Scovill Magnesium Compound.

In ounce bottles, with fuses.	$0 50
In quarter pound cans, with fuses.	1 40
In half " " " "	2 65
In one " " " "	5 00

Price of Scovill Magnesium Cartridges.

	Per Doz.	Per Gro.
No. 1, put up in packages containing 6 cartridges.	$0 50	$6 00
No. 2, " " "	80	9 00
No. 2½, " " "	1 20	13 00
No. 3, " " "	1 50	17 00

The Mascot Camera.

With Roll Holder and Double Plate Holder.

PRICE, $25.00.

Those who have seen the latest pattern of Knack Detective Camera know how light and compact it is. All who have tried one are willing to concede that the lens fitted to this Camera is finer in every respect than any sent out with other Detectives sold at the same price. **It ought to be for it costs over three times as much.**

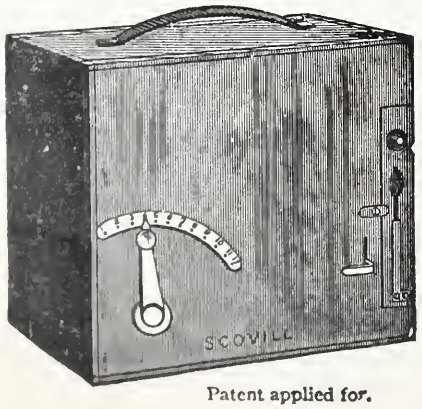
We now have a Camera quite similar to the Knack but fitted with **Eastman-Walker Roll Holder** as well as double Plate Holder, which has been named "The Mascot Camera."

The Roll Holder may be used with spools of Film for either 24, 48 or 100 exposures.

Price for 4 x 5 size Mascot Camera, complete, $25.00
Without Roll Holder, - - - 15.00
Leather Covered extra, - - - 2.00
Double Dry Plate Holders extra, - 1.00

The Advill Camera for Cut Films.

DIRECTIONS. { *SET THE SHUTTER.*
TOUCH THE RELEASE.
MOVE THE INDICATOR.



Patent applied for.

There are many amateur photographers who do not want to be encumbered with glass plates, nor do they want to use films in rolls, as in many roll-holders one hundred exposures must be made before any portion of the roll can be developed, and the finished pictures conveniently made. Our

ADVILL CAMERAS

— made for either twelve or eighteen cut films—are a happy medium between these extremes. Each film-carrier has a number corresponding to a similar number on the outside of the camera. After exposing one film move the indicator along from one number to the next number to get the exposed film out of the way and the unexposed film into place.

The camera is fitted with an Instantaneous Lens, which has an arrangement connected with it for changing the stops in the Lens without opening the camera. The shutter is arranged for both timed and instantaneous exposures. Attached to the leather-covered case there is a recessed finder.

Price for No. 1, for twelve 4 x 5 Films, reduced to..... .....$20 00
" 3, " 4 x 5 Glass Plates, reduced to..... 25 00

EXAMINE OUR NEW

BOOK CAMERA

BEFORE YOU PURCHASE ANY OTHER.

It is the most unique, elegant and attractive Camera ever produced. Suitable for ladies or gentlemen. Can be used as a hand camera or on a tripod.

SCOVILL & ADAMS CO.,

423 Broome St., New York.

The proper thing

In Photographs is the **ARISTOTYPE**

The proper thing

For making Aristotypes is the

ALPHA ARISTOTYPE PAPER

Send **30** cents for a sample dozen.
$1.70 per gross Cabinet size.

The proper thing

To protect Aristotype Prints are the

CABINET PHOTO COVERS

$2.00 per thousand.

Thos. H. McCollin & Co.

PHOTO SUPPLIES OF ALL KINDS,

1030 Arch Street, Philadelphia.

HORGAN, ROBEY & CO.,

Photographic Stockdealers,

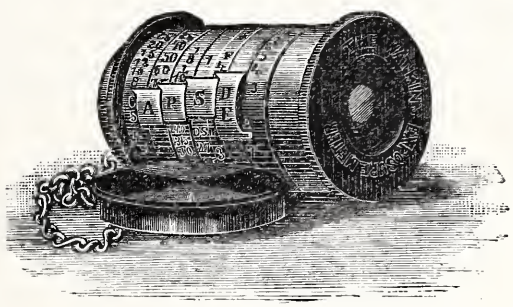
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NEW ORTHO-PANACTINIC LENS, C. H. C. & CO. S ALBUMEN PAPER, THE SEMI-CENTENNIAL CAMERA STAND, THE ODIN FRITZ RE-TOUCHING MEDIUM.

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NOTHING EQUAL TO IT!



THE WATKINS EXPOSURE METER.

IN ENGLAND. *PATENTED.* IN AMERICA.

PRICE.

No. 1. With 1 Exposure Ribbon and Book of Tables, $7 50
Extra Exposure Ribbons, each..... 25
Copy of Exposure Notes..... 50

No. 2.—This instrument works splendidly for intense difficult subjects and all daylight camera exposures, and is a thorough practical success. A special instrument, with an extra calculating ring, F, is now supplied. This instrument is invaluable for copying and enlarging, as it takes into consideration the focus, whilst at the same time it can be used for any ordinary use without any reference to this addition. Price, complete.....$8 50

The Cheapest and only reliable Meter ever invented.

Sold by THE SCOVILL & ADAMS CO.

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(VORM. E. SCHERING) BERLIN.

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PYROGALLIC ACID

RESUBLIMED

From E. SCHERING,

MANUFACTURING CHEMIST, BERLIN.

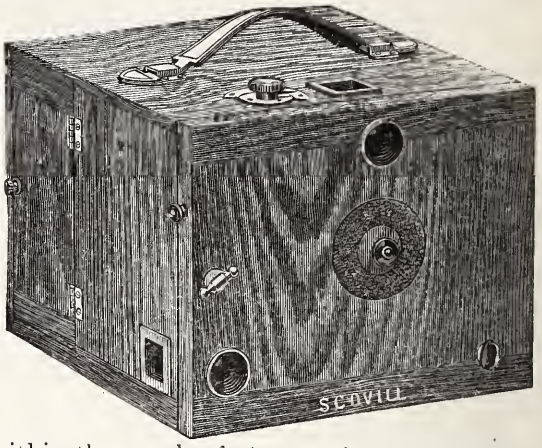
E. SCHERING, BERLIN. TRADE-MARK.

REGISTERED. **SEE THAT YOU GET THE "GENUINE SCHERING'S."** REGISTERED.

THE SCOVILL & ADAMS CO.,

423 BROOME STREET, NEW YORK.

IMPROVED KNACK DETECTIVE CAMERAS



To MEET the demand for a cheap Detective Camera within the reach of the youth, and of those who want to make but a moderate investment in photographic appliances, we have introduced the KNACK CAMERA, which is certainly lighter and more compact than any other cheap detective camera in the market, and what is still more important, has a much more expensive and more perfect lens.

This Double Combination Instantaneous Lens, with Interchangeable Stops, when bought separately costs as much as the whole camera.

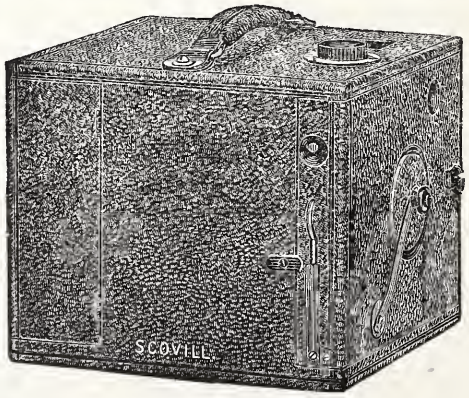
The whole front of this camera is hinged, which is a great convenience. The camera has a Recessed Finder, an Instantaneous and Time Shutter with Speed Regulator, Cap for timed exposures, and one Double Dry Plate Holder.

	PRICE.
No. 1 4x5 Antique Oak, Knack Camera, -	**$15.00**
No. 2, " Leather Covered, " "	**17.50**

MANUFACTURED BY THE SCOVILL & ADAMS CO.

FOR SALE BY PHOTOGRAPHIC MERCHANTS.

THE WATERBURY DETECTIVE CAMERAS.



MANUFACTURED BY THE AMERICAN OPTICAL CO.

Timed and Instantaneous Photographs. This is the only Detective Camera which is as well adapted for making timed views as for photographing quickly moving objects. The negatives produced are of such sharpness that they may be enlarged to almost any size. It is

The only Detective Camera made for plate for tripod, and with ground-glass the full size of the plate, just as in an ordinary view camera. This ground-glass is where it cannot easily be broken.

The Recessed Finder shows *the same image* as is included on the ground-glass, though diminished in size. Without this accurate finder, one cannot be sure of what is taken in or left out of an instantaneous photograph.

The Focusing Scale is beside the Finder, where it may be readily seen and adjusted.

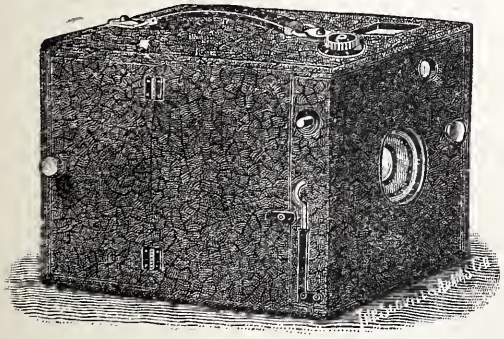
Price List.

	Leather Covered.
4 x 5 Waterbury Detective Camera, with 2 Double Holders	$25 00
5 x 7 Waterbury Detective Camera, with 2 Double Holders	40 00

FOR SALE BY ALL DEALERS.



THE TRIAD CAMERAS.



When a discovery in photography is announced, it is claimed that the new article will displace everything then in use. These claims are seldom justified. There is generally found a place for the new article, if it has any value, and for the old as well.

For commercial purposes, for instance, such as the reproduction of photographs for illustration, it has been demonstrated that collodion "wet" plates are better than dry plates. For the use of the amateur, on the other hand, dry plates are much better than wet plates. Though many new supports have been tried, the sale of glass dry plates is larger now than ever before. Where only a few pictures are to be made on one day's outing it is likely that the experienced photographer will always use dry plates or cut films.

If he is going away for a summer vacation, or for a trip abroad, and expecting to to make a large number of pictures, he will procure a roll-holder loaded with continuous films. This will save him the bother of developing while he is away from home, and of changing plates; but he cannot well know what results he has secured until he has exposed the entire roll and has had it developed.

For those who want to use celluloid instead of glass plates, and are not willing to trust to good luck in the exposure of the complete roll of film, we offer with the "TRIAD" camera a *double* film holder which is very light. If the amateur carries six of these holders (loaded with twelve films) he is well supplied for one day · that is, if he is prudent and aims to get only really good pictures. At night, either in a photographic studio or in his own hotel room, the exposed films may be put away into safe receptacles, and another lot of unexposed films substituted for them.

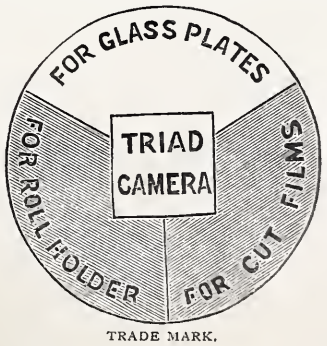
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How It Sells.

On February 15th, the first edition of 16,000 copies of "The American Annual of Photography and Photographic Times Almanac" for 1892, being nearly exhausted, the publishers issued a circular inquiring concerning the number of books unsold, if any, and also concerning the demand which still existed for the book, with a view of determining the advisability of issuing a second edition. In response to this circular about fifty answers were received, from which the following are quoted at random:

Felix Reifschneider, Jr.: "We have not got one copy of the fifty copies we had. They sold very well, twenty-five the very first day I had them in."

Thos. H. McCollin & Co.: "'The Times Annual' for 1892 is a great success. We have had four lots and have only a half dozen copies on hand. There seems to be a steady demand for it."

W. C. Russell: "Have just sold out, . . . and will say I have never yet been stuck by having any of the American Annuals left on hand."

F. Hendricks & Co.: "We have on hand only five copies to-day of 'The Times Almanac.'"

Sweet, Wallach & Co.: "We have disposed thus far of over 250 copies. Think we will want more later."

Oscar Foss: "Of the 175 copies received from you not one now remains. I have ordered a few more copies, which will, I believe, supply the demand here. If I had ordered 250 copies instead of 175 I should have had no trouble in disposing of them this year."

B. Y. Morris: "I am entirely out of 'Annuals,' and will include in my next order some more."

B. C. Norrell: "My stock is exhausted. I may be able to dispose of more copies."

H. A. Hyatt: "May want about twenty-five more to carry me through the year."

Mullett Bros.: "May want about twelve copies more."

Charles Lawrence: "We are entirely out, and shall need a few more copies."

Zimmerman Bros.: "Have sold twice as many as we expected."

J. C. Sommerville: "We have disposed of 100 copies, and are not certain that we shall require any more."

Douglass & Shuey Co.: "Paper, all gone."

Robert Clark & Co.: "We have none left in stock of the 'American Annual of Photography and Photographic Times Almanac' for 1892."

Kimball & Mathews: "We are about out of the 'Annuals.'"

M. F. King: "I have none of the 'Annuals' left. Could sell a few more, most likely, if I had them."

Wilson-Hood Cheyney Co.: "We have three copies on hand, and shall order in half dozen lots as needed."

W. S. Bell: "We have no 'Times Annuals' in stock."

Barker & Starbird: "We have no over stock of the 'Annuals,' and although we received three separate orders from you, we may be obliged to give you a fourth, in the near future."

McCurdy & Durham: "We have sold all but one copy, and shall probably need more shortly."

Paul Roessler & Co.: "We have not now any of the 'American Annuals of Photography and Photographic Times Almanacs' for 1892, on hand."

Buchanan, Bromley & Co.: "We have on hand 11 copies of the 'Annual.' These will go very easily. If all our goods were as sure sale as these, we would be happy indeed."

J. N. McDonald: "I have no copies of 'The Times Annual' for 1892, in paper. I have ordered a dozen copies more."

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"It is always so full of good and useful articles, and artistic illustrations."—C. H. THEBERATH, Newark, N. J.

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"You are to be congratulated upon the work."—H. H. SUPPLEE, Philadelphia, Pa.

"The articles are very practical."—T. E. HUSTON, Camelton, Ind.

"It is a library in itself, concise, and up to the progress of the times."—THOS. J. BRAY, Warren, Ohio.

"We find the work to be of unusual interest, and have no doubt that information contained therein will be a source indirectly of forwarding our experiments. The work we consider is of inestimable value to parties in the trade."—THE ELECTRO-TINT ENGRAVING CO.

"The illustrations are very fine, and plenty of them."—MISS ADELAIDE SKEEL, Newburgh, N. Y.

"The illustrations are certainly perfect, and the reading matter is so interesting, that I have perused every one of the well-written articles with profit."—MAXIMILIAN TOCH, New York City.

"We have nothing near so good here. It is the best 'Annual' yet published."—J. T. CHAPMAN, Manchester, Eng.

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"It is the biggest dollar's worth I ever saw."—GEORGE HUNTINGDON, Detroit, Mich.

"The work is all artistic, and should be very satisfactory to the patrons of it, and we are pleased that we occupy a part of it."—CROSSCUP & WEST ENGRAVING CO.

"It surpasses all others. I would as soon think of doing without my camera as without the 'Annual'."—E. E. SAWYER, Merrimac, Mass.

"It appears that the 'Times Annual' has set a standard for annuals which the others are unable to reach as yet. * * * I was greatly interested in Part Second—the advertisments—by their diversity and the progress which they indicate both scientific and commercial."—C. D. CHENEY, D. D. S., Hoboken, N. J.

"I find it filled with good things, and as usual gotten up in excellent taste."—EDWARD BIERSTADT.

"In illustrations I think this edition surpasses anything you have ever issued before, and the index would suggest a wide range of interesting points to photographers."—W. W. WALLACE, Cincinnati, O.

"It wins the Annual race at a canter, and beating the record at that."—ALFRED STIEGLITZ.

(OVER).

DEPARTMENT OF STATE.
WASHINGTON, D. C., Dec. 29, 1891.

"DEAR MR. ADAMS: The *edition de luxe* of the 'Photographic Times Annual' came safely this morning, and I am not sure but what it is my most acceptable holiday present. You have excellently rendered my little stereodouble. The rest of the book is up to your usual high and faultless standard. We amateurs owe you a debt of gratitude. * * Very sincerely, ALVEY A. ADEE."

"As I have frequently said to my friends when looking for goods in the photographic line, that they will find anything that they obtain from the Scovill & Adams Co. to be of the best, so I can in regard to the new 'Annual,' that its merits can be similarly described."—JAMES F. COWEE

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"I am quite delighted with the 'Times Annual.' It is quite a little library in itself."—E. H. P.

"Please accept my congratulations upon your most succesful production of the 1892 'Annual.'"—C. A. WASHBURN.

"A hasty glance through it convinces me that it is the best of the six volumes in matter and illustrations, which is praise enough."—A. J. WHALEN, Albion, Mich.

"I am very much pleased with the 'Annual.' The articles are very practical this year, and far from the 'artlessness' referred to by Miss Skeel."—T. E. HUSTON, Cameltton, Ind.

"I charming volume."—DR. NELSON B. SIZER.

"We are much pleased with the 'Annual' for 1892 and think it goes ahead of any of its predecessors."—LOEBER BROS.

"It is a book full of merit and good things for all photographers, both old and young."—B. W. KILBURN, Littleton, N. H.

"The 'Times Almanac' sales are beating all previous records, and we have already retailed over 100 of the lot received but a short time since."—BARKER & STARBIRD, Boston, Mass.

"To say that 'The Photographic Times Annual' for 1892, excels that of 1891, means a good deal. Such, however, seems to be a fact.—W. N. JENNINGS, Philadelphia.

"It is the best yet, and improving every year."—ALEXANDER HENDERSON, Montreal.

"You have always set the highest standard for the 'Annual,' and I believe this volume exceeds all previous efforts, and that is all that is left to say."—OTTOMAR JARECKI, Erie, Pa.

"The best number yet published."—H. S. THOMAS, Secretary Montclair Camera Club.

"They are selling splendidly. We have nothing half so good here. It is the best 'Annual' yet published."—J. T. CHAPMAN, Manchester, England.

"I am convalescent from a severe attack of the grippe, and have employed my time in perusing the pages and studying the pictures in your wonderful book, a treasure house of delight.—J. WELLS CHAMPNEY.

"It certainly is a most valuable work for both the amateur and the professional, and I cannot see how any camerist can be without it."—GEORGE C. RHODERICK, JR.

"It is of great value and interest, and will be highly prized by me."—F. E. FAIRBANKS, Fitchburg, Mass.

"I shall read it with great pleasure. It shows progress in the art, and reflects credit upon the publishers."—COL. V. M. WILCOX, President, E. & H. T. Anthony & Co.

"I am quite delighted with the 'Times Annual.' It is quite a little library in itself."—E. H. P.

"The 'Annual for 1892' comes to me as a most welcome Christmas offering, and I spent the greater part of the day in studying its pages. This last volume, with the preceding ones, forms now a most complete library of photographic literature and reference, and occupies a prominent place in my library."—H. EDWARDS-FICKEN.

"A magnificent book both inside and out."—W. S. WATERBURY, Bridgeport, Conn.

"It is simply elegant, and brim full of good things."—F. M. ROOD, Poultney, Vt.

SOME PRESS NOTICES.

"Much useful information is given in its pages, and it will be found thoroughly up with the times."—*Photography.*

"It is a book that will be greatly appreciated for the useful and reliable information it contains."—*The American Amateur Photographer.*

"The pages are crowded with articles from the wide range of contributors, and cover an equally wide range of subjects."—*Anthony's Photographic Bulletin.*

"It will rank well with preceding volumes, both as to the excellence of its illustrations, and the good things of its typography."—*Milwaukee Sentinel.*

"It is full of short, snappy and thoroughly practical articles on the latest manipulations in regard to dry-plates, developers, fixing and toning baths, etc. . . . The illustrations are in the highest style of the art, and well calculated to display the perfection to which modern photography in half-tone processes has attained."—*San Francisco Call.*

"The 'American Annual of Photography' is as usual a perfect mine of good things; photographic wisdom in nuggets of all sizes. . . . It is worth ten times the price of the book to any amateur or professional."—*The Photo American.*

"Every one who takes an interest in the business wants a copy of this 'Annual.'—*The Eye.*

"To the photographic student and enthusiast no portion or special department of the art is so welcome as that which gives him in condensed form the very latest information in the development of photography. This service is well performed by the same 'Annual' which has reached with its sixth annual volume a popularity as widespread as it is deserving. Many capable writers and workers have contributed of their wisdom and experience to make it what it is—an indispensable handbook of photographic processes and progress."—*Philadelphia Public Ledger.*

"The whole forming a handy reference volume which every intelligent photographer should have within reach."—*American Journal of Photography.*

"Should be in the hands of all the amateur clubs. It is a thick volume of 363 pages stuffed full of material that the amateur will find interesting and valuable. . . . This year's 'Annual,' as a whole, will be found especially interesting."—*New York Recordor.*

"The 'American Annual of Photography for 1892' is published in greater bulk and perfection of illustration than heretofore."—*Brooklyn Eagle.*

"It is the best of the series that they have published. The reading matter is well selected, and covers almost every department of photography, while the illustrations are handsome and of the best work of the various processes which they represent."—*New York Times.*



Very truly yours,
Fred. E. Ives.

THE PHOTOGRAPHIC TIMES.

VOL. XXII. APRIL 22, 1892. NO. 553.

OUR PORTRAIT.

WE take pleasure in presenting our readers this week with an excellent portrait by Gutekunst of Philadelphia, of Frederick E. Ives, the inventor of a successful method for reproducing the colors of nature by photography. This method was fully described in THE PHOTOGRAPHIC TIMES of February 19th, and has been illustrated before the public on several occasions of late, both in Philadelphia and New York. Mr. Ives sailed for England last Friday, where he will lecture before the Royal Institution on two separate occasions. The biographical sketch which follows is sure to be of interest to all readers of THE PHOTOGRAPHIC TIMES.

F. E. IVES.

FREDERIC EUGENE IVES was born in 1856, in Litchfield, Conn., where he was apprenticed to learn printing when thirteen years old. His evenings, while serving his apprenticeship, were chiefly devoted to the publication of a very small but unique amateur story paper, and to the printing of visiting cards, for which he received mail orders from all over the country, and even from Mexico and Canada. During the last (third) year of his apprenticeship, his available daylight hours were devoted to amateur photography, and his negatives being made with a cigar-box camera.

Leaving Litchfield when his apprenticeship was finished, he obtained employment as a journeyman job printer in Ithaca, N. Y.; but continued his photographic experiments, and finally gave up printing to accept a position as operator in a portrait photograph gallery.

When eighteen years old he applied for the position of photographer to the Cornell University, and after a trial was given the position, and remained in charge of the photographic laboratory for about four years.

It was here that Mr. Ives laid the foundation for all his subsequent work in mechanical and scientific photography. He commenced by perfecting the small gelatine photo-engraving process, then operated with equal success in only one establishment in the country, and followed by inventing his half-tone block process, the first in the world to be introduced into successful commercial operation. Here he also repeated and improved upon the experiments of Duhauron and others in composite heliochromy, and first carried out his process of orthochromatic photography with myrtle-chlorophyl and collodio-bromide plates and the yellow screen.

For the past thirteen years Mr. Ives has had charge of the photo-engraving department of the Crosscup & West Engraving Company, in Philadelphia, and during that time has brought out several minor inventions, for some of which he has been awarded medals by the Franklin Institute of Philadelphia.

His most important recent work is in connection with his own process of composite heliochromy, which he published in 1888, patented in 1890, and which is now in successful operation for lecture illustration.

His latest perfected inventions are his camera for making the three negatives for this process by one exposure on one plate from one point of view, and an optical device which shows these photographs in the natural colors as readily as the stereoscope shows stereoscopic photographs in relief. The latter invention has not yet been publicly exhibited, but Mr. Ives writes that it is a practical success, and it will be exhibited in London before the Royal Institution of Great Britain.

Mr. Ives is a married man and has one son. His home is a pleasant one, and his experimental workshop and laboratory occupy one floor of his house. The microscope is one of his "hobbies," and he has done some noble work in photomicrography.

Copyrighted.

EXPERIMENTS WITH PARA-AMIDOPHENOL.

Our German and Austrian contemporaries abound in formulæ for para-amidophenol developing solutions all claiming they are superior to those previously recommended. Some of them fulfill all that is claimed : reduced time of exposure, perfect middle tints, absolute clearness, sufficient intensity and freedom from stain ; while with others yellow stains are inevitable, the plates fog, and intensity is out of question, unless one resorts to the aid of hydrochinon.

One of the errors made in compounding these developers is doubtless a want of attention to the reducing agent itself, which requires somewhat different treatment from those usually employed for other agents. There is, for example, one formula proposed by Dr. Andresen and endorsed by Drs. Eder and Stolze, which, it is said, forms a compound identical with that imported from Germany. It contains an enormous amount of meta-bisulphite, the para-amidophenol is at first precipitated, and finally re-dissolved with a saturated solution of caustic soda.

We have experimented considerably with the imported solution and with a compound made in our own laboratory and strictly according to the formulæ published. But with neither of them satisfactory negatives were obtained ; the negatives developed fairly well at first, but intensity could not be obtained, no matter how long the plates were subjected to their action ; finally a fog appeared, and spread rapidly all over the plate. The imported and our own solution were yellow, not colorless, as is claimed.

One of the most serious disadvantages of the developer is, that it powerfully attacks most of our American gelatine emulsion plates by the enormous quantity of caustic alkali it contains; the films suffer immensely, even at our present low temperature. It will be impossible to use it when the thermometer stands in the nineties. Furthermore the skin of the hand is so much acted on by the alkali, that after developing three or four plates it will be dangerous to develop any more.

The compounds made according to the formula given by Mons. Lumiére, sustain much better the good reputation of para, although in these modified forms the concentration is much reduced, and the developer does not in many cases produce equally satisfactory results. They are, however, superior to the other in one respect; they keep well and remain colorless even when kept in but partly filled bottles, the oxygen of the supernatent air exercising but little action, and that only after a long time. It has been sufficiently proved that these developers produce absolutely clear negatives and good intensity.

From the apparent want of concentration, many quite experienced operators still complain of the inability to obtain sufficient density without having recourse to hydrochinon. But this is doubtless a strong *testimonium paupertatis* to para-amidophenol hydrochlorate. If to one litre of para-developing solution we add 4 or 5 grains of hydrochinon, without altering the proportion of sulphite and of alkali, the para might be left out entirely and with the same results.

Let us turn our attention to a method of preparing para developer in the highest state of concentration, to obtain intensity in a simpler and more convenient way. As with pyro and other agents, the stronger the solution, the more intense the negative.

Superficial experiments have shown us that para-amidophenol hydrochlorate is not very soluble, and that, when to a moderately strong solution the requisite amounts of sulphite and alkali are added a large surplus of para will separate from the solution in a crystaline form, especially when the temperature is below 66 deg. Fahr. From this fact it has been deduced that solutions of but a very limited concentration are within our reach.

But what is the necessity of adding to a para developer such an enormously large quantity of sulphite as 10, 15, 20, and even 25 times the amount of para-amidophenol? The pure para-amidophenol hydrochlorate is easily soluble in cold water, and a solution in the proportion of 1 to 8 of sulphite keeps quite well. When we consider that 5 parts by weight of sulphite of sodium to 1 part by weight of pyrogallol preserve the solution perfectly well, the question naturally occurs why the same amount of sulphite should not answer as well with para, since its property to resist oxidation is one of its greatest advantages over the other organic developing agents? To avoid the use of so large a quantity of sulphite, many experiments have been made, with meta-bisulphite of potassium for example. Large quantities of it almost overcome the reductive action of para, and in smaller quantities there is a remarkable and very distinct tendency to the reversal of the image, no matter how long or how short the exposure.

Sulphurous acid added in small quantities has no effect. If too much of it be added the developing solution reacts strongly acid, and must be first neutralized, then made alkaline, which amounts to the same thing as to add sulphite direct.

Para being in reality more soluble than it has been reported, and as it is evident that a small quantity of sulphite will well preserve its solution, we have gradually reduced in our developer the amount of this latter salt and increased that of para. Our developer contains at present 150 grains of para-amidophenol hydrochlorate dissolved in 32 ounces of distilled water and 1½ ounces each of chemically pure sulphite of sodium and carbonate of potassium. The solution is clear, perfectly colorless, and being stronger than others allows more latitude in working. It is quite effective and certainly superior to any imported and patented compound. If to the ready-mixed developer a few drops of concentrated solution of caustic soda be added, then the development of negatives shortly exposed would be greatly facilitated. Observations similar to ours have also been made by other experimenters Mons. Dechamps, for instance, has recommended a formula much stronger of para and with less sulphite than is generally prescribed.

ALUMINIUM.

Professor G. Lange publishes in the *Engineering and Mining Journal* the following account of his experiments to ascertain the action of certain liquids on aluminium, to which he was led by the statement of German experimenters that aluminium vessels were unsafe to use:

"Taking the worst case found, that of acetic acid, we find a maximum attack of less than 5 milligrammes per 100 square centimetres in six days. Pure alcohol of 50 per cent. strength lost .61 of a milligramme in six days by 100 square centimetres of surface; and in the same time a 5 per cent. solution of tartaric acid lost 1.69 milligrammes; 5 per cent. solution of citric acid, 2.15 milligrammes; but a ¼ per cent. of salicylic acid, 0.35."

PHOTOGRAPHY ABROAD.

Fading.

A cause of fading upon which we call the attention of the manufacturers of aristotype paper, coated either with a collodion or a gelatine emulsion, is the quality of the paper itself, which in a more or less long period becomes tinted yellow, as everybody has observed in old engravings.

"If a sheet of paper be exposed to light—a portion being protected for comparison—" says the editor of the *British Journal of Photography*, "in nine cases out of ten it will be discolored, sometimes even in a few days. The discoloration is sometimes due to the material of which the paper is compounded, and frequently to the coloring matter added to give it a fictitious appearance. We were recently shown some photo-mechanical prints that had been exposed in a shop window for two or three weeks, which have become quite yellow in the lights owing to the change in the paper. For ordinary silver printing only the Saxe and Rives paper are used, and both of these may be considered stable. But in other processes less high-class papers are generally employed.

Toning and Fixing in One Operation.

Here is one of those astonishing formulas for toning and fixing in one operation prints on gelatine or colloiod silver chloride films:

Water	2 liters
Hyposulphite of soda	500 grammes
Sulphocyanide of ammonia	55 grammes
Acetate of lead	20 grammes
Alum	15 grammes
Acid acetic	15 grammes
Acid citric	15 grammes
Nitrate of lead	20 grammes
Solu. of chloride of gold 1:100.	75 c.c.

"This bath becomes torpid at first; after two days one filters it. Even if a little sulphur was again deposited, this has no importance (!). It can be employed at a mean temperature of from 15 deg. to 18 deg. C.," etc., etc.

We will publish no more of these formulas. We give this one as an exceedingly wonderful curiosity. It comes from Geneva (Switzerland).

A New Hydroquinone Developer.

In the *Revue mensuelle* we find a novel formula due to Dr. Olhn for an hydroquinone developer which possesses a remarkable keeping quality. It stands thus:

Hydroquinone	7.5 grammes
Resorcin	0.4 grammes
Sodium sulphite	30 grammes
Sodium carbonate	20 grammes
Distilled water	1000 c.c.

About the Discovery of the Development on the Latent Image.

The old story that Daguerre found *par hazard* how to develop by the fumes of mercury the latent image impressed on iodized silver plates, by having placed one of them against an amalgamated zinc plate, is again reprinted by English authors. The writer, who several times consulted on heliochromy and the bitumen engraving process Mr. Niepce de St. Victor, who was on intimate terms with

Daguerre, heard him state on one occasion that Daguerre, convinced that light had produced a certain decomposition of the silver iodide formed on the silver plate, which he afterwards ascertained by the faint image appearing after a long insolation, thought that if the change resulting from the luminous influence in the constitution of the silver iodide had caused a complete reduction, mercury should form an amalgam on the impressed parts, which on trial he found to be the case ; hence the development by the fumes of mercury.

Platinum Printing.

Herr Wischeropp rightly observes that to obtain good platinum prints the chemicals should be chemically pure, especially the ferrous iron employed to prepare the oxalate, it often being contaminated by a basic or a ferric salt or both. He also recommends that the paper as soon as prepared be rapidly dried, to prevent the sensitive solution being imbued into the paste of the paper, which is well known, the novelty being to use for that purpose a box heated at the temperature of about 55 to 60 deg. C.

Herr Wischeropp gives the following formula to compound the sensitizing solution:

A.

Sodic ferrous oxalate	40
Sodium oxalate 3 : 100	180
Potassium chlorate	1

B.

Potassic platinous chloride	10
Distilled water	60

The solution A does not keep well; it should be employed when freshly made.

Fresh-prepared paper gives the best results.*

The patent granted to Willis in 1876 for his invention of the platinum process is expired. It is now public property.

Bene Trovato.

Mr. W. Vick, of Ipswich, writes to the *British Journal of Photography* "that having to photograph a house on a hill at the back of which (the hill) was a pond, the surface of which was covered with ripples, became a serious matter. Having 3 ounces of oil with him, he threw it upon the water, with the result that there was a subsidence of the ripples, and in the resulting photograph the reflections in the water were discernible, which was not before the case. The oil should be thrown upon the water from the side from which the wind is blowing."

It is very good to carry three ounces of oil in his pocket. But are sharp reflections in water very artistic in a landscape? We think that a little oil spread on the wind to keep the foliage still during the exposure-time will be an improvement.

Development of Plates Instantaneously Exposed.

The method of over-exposure to obtain the details when in a landscape the contrasts are very great is no doubt effective, but not possible when the landscape is animated by the presence of men and animals, which requires a very short, instantaneous exposure. In this case slow, very slow development with a solution containing a small dose of pyrogallol is recommended. Here is another developing process Mr. Th. Tommasina recommends to the readers of the *Revue de Photographie :*

A.

Boiling water	500 grammes
Eikonogen	15 grammes
Sodium sulphite	60 grammes

B.

Concentrated solution of sodium carbonate.

Developing Bath.

Solution A	100 grammes
Solution B	2 grammes

Fixing Solution.

Water	1000 grammes
Sodium hyposulphite	200 grammes
Sodium sulphite	15 grammes
Sulphuric acid, pure	2 to 3 grammes

This bath should be prepared 24 hours before use, then filtered.

The negative being developed thorough, is immersed in water containing a little of the fixing bath and a few drops of sulphuric acid, in which it should remain from a few seconds to a minute, according to the more or less contrasts of the image, which is ascertained by viewing the plate by transparency. One examines it again after fixing and leaves it in this bath a few minutes more if it is yet found a little harsh.

PHOTOGRAPHY FOR BEGINNERS.

(*Continued from page* 184.)

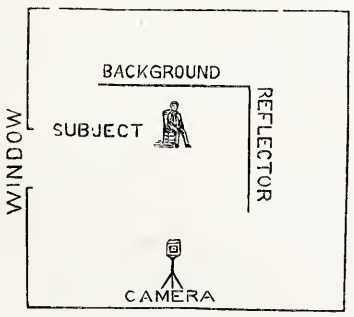
Portraiture at Home.

Portrait-making by photography is one of the most interesting of pastimes. It is not necessary to have a regular studio, with skylight, painted backgrounds, and papier-maché accessories, in

* See "Photographic Reproduction Processes" a practical treatise of *all* the printing processes without silver salt. Published by The Scovill & Adams Co

order to make good likenesses of your friends with the camera. The light from an ordinary side window in your home will answer very well; and for a background a large sheet of brown wrapping paper will serve. Real furniture looks better in a photograph than the imitations which are used in the professional studio, and there is no reason why the amateur should not make as good portraits of his friends as the professional photographer.

Select a room with plain white or painted walls for your studio, if such is to be had in the house; and it is better if the windows or window is on only one side. If possible, have the window face the north, for then the illumination is the same throughout the day, the sunlight at no time entering a window which faces due north. If the walls of your improvised studio are papered with brilliantly colored figures, you must use a background in all cases. A good one can be made by stretching some dark woolen material over a clothes-horse or other suitable frame. Or, as has been been suggested, plain brown wrapping paper may be used if a large enough sheet can be obtained to cover at least one side of a clothes-horse or similar frame. If the clothes-horse is divided, and hinged in the middle, as is very often the case, the other panel may be covered with a white cloth or paper, and will serve very well as a reflector. If the wall is plain white or of a gray color there is no absolute need of a background, for the wall will answer very well; and then one need make but a reflector in order to be ready for work. The reflector is of white material, so that, by being placed



opposite the window through which the light enters to illuminate the subject, the darkened side of the face is lighted to a certain degree, and thus a more even illumination is given the portrait. If there are windows on two sides of the room, all but those on the one side must be closed by means of shutters and curtains, so as to exclude any light, for the illumination must all be from one source.

If a background is used, and the amateur is fortunate enough to have the use of a hinged frame like an ordinary clothes-horse, he arranges his appearance and subject as shown in the diagram.

In posing the subject, there is room for the exercise of much taste and artistic skill; and in lighting, opportunity is giving for the display of the best of judgment. Seek to photograph your friend in a characteristic attitude. Sometimes it will be standing, sometimes sitting; while at others, reading a book or a letter, or even writing at a table, makes a suitable pose. Then there are characters in history and fiction which one can represent by appropriately dressing and posing the figure. There is no end to the pictures which one can make in a home-made studio, with the camera.

The first object, of course, in photographing one's friends is to obtain a characteristic likeness, and in this respect the amateur should be able to obtain a more satisfactory portrait that even the most skillful professional; for the amateur knows his friend—what pose and expression is most characteristic—while the professional cannot be expected to bring out the individuality of his subject on but a few moments' acquaintance. Then, too, the self-conscious expression which a subject is very likely to assume when seated before a camera in the professional's studio is not so often seen in a portrait made at home among familiar surroundings. Let the subject be dressed in ordinary clothes, and have the hair arranged in the usual way. The plainer the clothes the more effective will be the portrait, for, like fancy backgrounds, elaborate costumes sometimes attract more attention than the face, which should be, of course, the most prominent feature of the portrait. A plain sitting pose, showing head and shoulders, is, as a rule, most satisfactory, especially for beginners. Such a pose is easier to light, and requires less skill in the arrangement of details.

The camera which we have used in the field will answer all purposes for home portraiture, though a regular studio camera, with an adaptable rolling stand made especially for portrait work, is more convenient, of course. The lens which we have been using will also answer for portrait-making, for it is a long-focus one, and possesses what is called a "flat" field. If a wide-angle lens had been used for landscape purposes we should have been obliged to procure another one for portrait-making. The single-view lens which came with our outfit, however, does fairly good work in both departments of photography.

When the subject is posed in a natural position, with the best side of his or her face turned toward the light, we are ready to focus. The plate-holder is then inserted as before, the lens capped, and the slide withdrawn. We are now ready for the exposure, and here twenty or twenty-five seconds will

be required; the exact length of exposure must be determined by experience, as in the case of landscape-making. It is well to expose both plates on the subject, giving one a little longer time than the other, and slightly changing the pose, so that there will be two chances of success, and a choice in the position of the subject.

A group of two or more figures is managed in much the same way, so far as lighting and posing are concerned; but if the group should become larger than this, it is better to photograph it out-of-doors, using the plain side of a house for a background, and photographing when that side is in shadow. The people composing a group should be arranged in the general form of a pyramid; and do not let all the members of the group stare directly at the camera, or, indeed, at any one point. Each one should be looking in the most natural way, and be in a characteristic pose, so far as is possible. Let there be some prominent central idea when the group is not too large, and the result will be a picture as well as a number of individual portraits in one photograph. In making groups, as in photographing separate individuals, the taste of the amateur will suggest and direct; and be sure that you are master of ceremonies, for if every member of a group should carry out his or her ideas the picture would present a rather disconnected and queer appearance. You alone can judge of the effect as a whole, as you alone see it on the ground glass.

Developing and printing a portrait negative differs in no essential way from the same processes in connection with a landscape plate, which we have already learned how to make from beginning to end. But a portrait negative is sometimes "retouched" after it has been developed and fixed. This should never consist of more than merely touching out the imperfections in the plate with an ordinary lead pencil. Over-retouching is not artistic, and is more objectionable than no retouching at all. Indeed, many portraits which the amateur will make are much better if not retouched at all.

In printing, a paper vignette which cuts off the sides of the negative and allows the portrait to gradually shade off into whiteness sometimes produces an agreeable effect. The face is prominently brought out and the surroundings are softly shaded off into the background. Portraits appear best when mounted on neat white cards without gilt edges or anything to detract from the likeness itself.

(*To be continued.*)

PHOSPHORESCENCE OF PRECIOUS STONES.

Mr. Kuns, of New York, expert, very well known in matters of precious stones, has lately called our attention to a property possessed by diamonds which on certain occasions may serve to distinguish other gems. Mr. Boyle had already observed that certain diamonds emit light when rubbed in the dark, and that one of his stones was phosphorescent at the heat of the hand, or when rubbed after being heated at the flame of a candle.

This led Mr. Kuns to make researches which permit him to think that all the diamonds possess this property and become luminous in the dark when rubbed against cloth, wood or metal, after having been exposed for a certain time to the solar radiation or to the electric light.

If this fact were verified it would be a precious and easy manner of detecting the strass-diamond and other hard stones which in any way do not possess the property in question.

CENTRAL STOPS FOR THE 4-GEM LENSES.

Ferrotypers, and those using gem lenses singly for copying, can easily have central stops added to their lenses at very small expense. First get a jeweler to saw the tubes about one-third into the centre. Then any tinsmith with his pinchers can make the stops with the different size openings. Such stops are very convenient in making standing figures or groups.

The tubes should be focused in the brass plate, and the slits made on the outside of each tube for convenience in inserting the stops.

J. R. Swain.

THE CHEMISTRY OF PHOTOGRAPHY.

(*Continued from page* 199.)

CHAPTER VIII.

Chemistry of Development (III.): Bromide of Silver in Gelatine.

The First Gelatine Emulsion Dry-Plates Developed by Maddox in 1871.—When Dr Maddox introduced the now universally practiced gelatine dry-plate process in 1871,* he found that he was able to develop an image upon them with pyrogallic acid alone, using a solution of 4 grains of pyro to the ounce of water. And this leads us to notice that it is the pyrogallic acid which is the real or principal ingredient in the developer. Pyro can

*British Journal of Photography for September 8, 1871.

develop an image by itself: the ammonia serves merely as an accelerator, and the bromide as a restrainer.

Maddox developed a thin picture with pyro alone; and then washed the plates and intensified them with silver. He attempted to use ammonia with the pyro, but the plates then fogged. He apparently did not think of the necessity for using a bromide in addition, as recommended by Russell.

Which is the Best Developer?—The first gelatine emulsion dry-plates ever sold commercially were made by J. Burgess, of London, in 1873; they were developed with "alkaline pyro"; and the same developer was recommended by Mr. Kennett (also of London), who strove hard to introduce similar plates into general use between 1874 and 1877.

Thanks to the discoveries of Bennett, Mansfield, and others in 1878–9, as to the wonderful rapidity to be obtained in the gelatine emulsion by the use of *heat* in its preparation, gelatine dry-plates came fairly to the front in 1879, and they ousted collodion from the supremacy which it had enjoyed for nearly thirty years.

During the early years of the dry-plate era—1879–85, while the ordinary alkaline developer (consisting of pyro with ammonia and a bromide) was in great favor in England, workers on the Continent preferred ferrous oxalate; while in America one of the fixed alkalies—either carbonate of soda or carbonate of potash—was preferred to ammonia. During recent years, however, the claims of pyro over ferrous oxalate have been very generally admitted. With plates of inferior quality (and the dry-plates made on the Continent were certainly not equal to English plates) ferrous oxalate gives a brighter picture, but it does not permit the latitude of exposure which is the most valued feature of pyrogallic acid.

But other developers have risen up to dispute the field with pyro. First we had hydroquinone, and then eikonogen. Their chemical action in the developer is similar to that of pyro. But it is to be doubted if either of them are quite so good for all-round work as pyro. We once (perhaps rather rashly) made the assertion that "the man who is to discover a better developer than pyro-ammonia is not born yet"—but nothing has been done so far to disprove this statement.

Chemistry of the Development of Gelatine Dry-Plates.—The sensitive surface of the gelatine dry-plates, or films, of which millions are now used annually, consists of molecules of silver bromide embedded in gelatine. When dry, the coating of "gelatino-bromide of silver" forms an extremely thin layer, adhering to the glass or celluloid; but when wetted by the developer the gelatine swells up, and forms a layer about the one-thirtieth of an inch in thickness. When exposed within the camera, a latent image is formed upon the *surface* of the film; and for our present purpose we will consider this invisible image as consisting of silver sub-bromide, Ag_2Br.

The object of the developer is to strengthen this latent image so as to render it visible, and to convert it into metallic silver.

Several developers are used for this purpose, and we will consider their chemical action in turn.

Alkaline Development with Pyrogallic Acid.—As a standard developer for our ordinary plates or films we may take the following formula:

Pyrogallic acid	2 grains
Ammonia (.880)	2 minims
Potassium bromide	1 grain
Boiled distilled water	1 ounce

When such a developer is poured upon the surface of a gelatine plate which has been exposed within the camera the following chemical changes take place:

$$2Ag_2Br + C_6H_3(HO)_3 + 2NH_4HO =$$

Silver Sub-bromide *and* Pyrogallol *and* Ammonia *produce*

$$2Ag_2 + 2NH_4Br + [C_6H_3(HO)_3 + O] + H_2O$$

Silver *and* Ammonium Bromide *and* Oxidized Pyro *and* Water.

The ammonia probably forms a combination with the pyrogallic acid (or pyrogallol, as it is more properly termed) which may be designated ammonium pyrogallate. This substance attacks the silver sub-bromide but *not* the silver bromide. The result is that the bromine in the silver sub-bromide is abstracted, and metallic silver is produced. This takes place, be it remembered, on the *surface* of the film only.

But the nascent silver has a powerful chemical action upon the layer of silver bromide *underneath* the surface layer of sub-bromide. It combines with this bromide and reduces it to the state of sub-bromide:

$$Ag + AgBr = Ag_2Br$$

Silver *and* Silver Bromide *produce* Silver Sub-bromide.

NOTE.—Another view of the phenomena of development was suggested to me by the well-known fact that the presence of water is indispensable. If we suppose the first chemical action that takes place to be the decomposition of the water, $H_2O=H_2+O$, then the pyrogallic acid will be oxidized by the oxygen, while the hydrogen will combine with the bromine of the sub-bromide to form hydrobromic acid, $H+Ag_2Br=HBr+Ag_2$. W. J. H.

Use of Soluble Bromides as Restrainers.—It is usually found necessary to add a small quantity of either potassium bromide or ammonium bromide to the alkaline pyrogallic developer. Different makes of dry-plates differ much as to the quantity of bromide which they require; but the maker's formula usually gives the proper proportion.

When the exposure has been very short, and a weak developer is employed, it is possible to dispense with such a "restrainer" altogether.

Many workers who take care to use only the best brands of dry plates invariably dispense with bromide for their instantaneous pictures.

The office of the bromide—and we may say at once that we prefer *potassium* bromide—is to prevent the reduction of silver upon those parts of the plate which have not been affected by light; to save the plate from being "fogged," in fact.

Now silver bromide is soluble in a solution of potassium bromide, a fact which shows that the two substances have some chemical affinity for one another. It is probable that the one bromide forms a loose molecular combination (= double salt) with the other:

KBr	+	AgBr	=	KBrAgBr
Potassium Bromide	*and*	Silver Bromide	*produce*	Double Bromide of Potassium and Silver.

The double bromide is better able to resist the action of the developing solution than the silver bromide alone; and thus the unexposed parts of the plate are kept clear from fog.

Ferrous Oxalate as a Developer.—The use of ferrous oxalate as a developer was discovered almost simultaneously by Mr. Carey Lea in America, and by Mr. W. Willis, Jr., in the year 1877.* It is generally prepared by making saturated solutions of potash oxalate and of ferrous sulphate, and then pouring (not more than) 1 part of the latter into three parts of the former. Chemical action at once takes place, and the color of the mixture should be a clear ruby:

$FeSO_4$	+	$2K_2C_2O_4$	=	$K_2Fe(C_2O_4)_2$	+
Ferrous Sulphate	*and*	Potassium Oxalate	*produce*	Potassio-Ferrous Oxalate	*and*

K_2SO_4
Potassium Sulphate.

Before mixing the solutions it is well to add a few drops of sulphuric acid (3 or 4 to each ounce of the liquid) to the ferrous sulphate solution. About the same quantity of a 10 per cent. solution of potassium bromide should be added to the mixed developer to act as a restrainer.

The above proportions (1 to 3) are the strongest permissible; but it is better to use 1 to 4; and for lantern slides and bromide paper (for which ferrous oxalate is an admirable developer) it should be used weaker still, say 1 to 6.

When a solution of ferrous oxalate is poured upon an exposed dry-plate, the following reaction takes place:

$6FeC_2O_4$	+	$3K_2C_2O_4$	+	$6Ag_2Br$	=	$6Ag_2$
Ferrous Oxalate	*and*	Potassium Oxalate	*and*	Silver Sub-bromide	*produce*	Silver

+	$6KBr$	+	$3Fe_2(C_2O_4)_3$
and	Potassium Bromide	*and*	Ferric Oxalate.

Ferrous oxalate is a developer which gives particularly clear and brilliant negatives, and if the exposure has been correct, or very nearly so, it is all that can be desired; it has not, however, nearly the "latitude" of pyro.

Under-exposure may be met—to some extent—by adding to each ounce of the developer from five to ten drops of a 5 per cent. solution of "hypo;" this has a marked effect in bringing out detail.*

The chemical effects of the "hypo" is to remove from the developing solution, or rather to convert into comparatively harmless substances, the ferric oxalate and the potassium bromide formed during development, both of which are powerful restrainers. The ferric oxalate is acted upon by the hypo as follows:

$Fe_2(C_2O_4)_3$	+	$2Na_2S_2O_3$	=	$Na_2S_4O_6$	+
Ferric Oxalate	*and*	Sodium Thiosulphate	*produce*	Sodium Tetrathionate	*and*

$Na_2C_2O_4$	+	$2FeC_2O_4$
Sodium Oxalate	*and*	Ferrous Oxalate.

The potassium bromide is also converted into sodium bromide, whose restraining action is less energetic.

$Na_2S_2O_3$	+	$2KBr$	=	$K_2S_2O_3$	+
Sodium Thiosulphate	*and*	Potassium Bromide	*produce*	Potassium Thiosulphate	*and*

$2NaBr$
Sodium Bromide.

W. Jerome Harrison.

(*To be continued.*)

* *British Journal of Photography* for 1877, p. 293.

* Abney, in *Photographic Journal* for 1880; pp. 22, 160.

"The Photographic Times Almanac is worth its weight in gold."—W. H. LISBONY, Galveston, Texas.

The Columbia Print Mounter is meeting with a very rapid sale.

THE IVES PROCESS.

[Translated for THE TIMES.]

In a very interesting conference given at the Conservatoire des Arts et Métiers, Mr. Léon Vidal has presented to the French public an experiment which, in America, has an enormous success. We speak of the projections in colors by Ives' process. This process is based on theoretical conceptions of the greatest value, and opens, certainly, the field to researches of the greatest interest.

Before giving a description of the process of Mr. Ives, it will not be useless to enter into some preliminary explanations.

The readers who have followed our articles on the colored light, will remember that the seven principal colors of the spectrum have been by Brewster reduced to three—the red, the yellow, and the blue—which he called the fundamental colors. This theory for a long time prevailed, until the day Helmoltz demonstrated that the yellow and the green are complementary colors, giving by their combination the white and not the green, as we are accustomed to think, because we make the mixture not of the colored rays, but of coloring pigmentary substances.

It is perfectly true that the painter by mixing on his pallette chrome yellow and ultramarine blue obtains the green; but the physicist who thus mixes two colored rays obtains the white, and Mr. Vidal made this experiment, to the great amazement of the non-initiated. It is because the objects, the coloring matters, give us the impression of a color only by the absorption of all the the colors which constitute the white light, except those which we attribute to the matter, and which is alone reflected towards our eye. And. if the chrome yellow absorbs principally the blue and violet rays, the ultramarine blue absorbs in preference the orange, red and yellow; there remain, therefore, only the green rays which reach us.

The constations made by Lambert, then, without knowing these first works, by Platet, and lastly by Helmoltz, lead to the conception of a new ternary—red, green, violet. It is by admitting this manner of seeing preconized by Young that Mr. Ives researched to realize the problem. In his first studies, a few years since, he obtained three negatives by isolating the colors after the ternary of Young. Then from these he printed three diapositives which, projected at the same moment by three lanterns, gave on the screen only one and black image. If, before each of these diapositives, is placed a colored glass, each of the projections, seen separately, is a monochrome red, green, or violet, but the three projections together united produce an image with all, or at least the greater part of the natural colors. At the meeting point of the three rays a pure white is produced, the combinations two by two of the three fundamental rays give all the colors of the solar spectrum. And when, at the "Conservatoire des Arts et Métiers," after having superposed the three black images, obtained by isolating the colors of a bunch of artificial flowers, Mr. Vidal placed before the lenses three tinted glasses, the instantaneous coloration of the flowers with surprising fineness of tint caused in the room enthusiastic applauses.

In a conference made last December in Philadelphia, Mr. Ives projected a series of views taken in the park of Yellowstone. He then gave on its researches some indications which we will resume briefly.

Mr. Ives actually employs a camera obscura with three lenses which form on the same photo-film the three impressions, by means of three prisms. As to the process employed to isolate the color, the inventor did not give any indications; his patents not having been yet taken.

This negative with three images serves to make a diapositive, which is placed in the lantern, whose optic system has been modified. It has a single luminous focus, only one condenser; but three prisms equally disposed divide the light between the three images, and opposite each one is placed a lens. Behind every image is a glass tinted with a suitable color. According to the American journals which give these details, the superposition is very complete; the view is about three times smaller than the ordinary views of projection, but with a brilliancy and a marvelous scale of colors. The views—and one understands it by what precedes—replace each other as in the usual process, since the three images are on the same plate.

It is right in ending this article to render to each one the part which is due. If in 1865 Collins had the idea to separate the colors, Ducos du Hauron and Cros have applied it, by different methods, and both have indicated the possibility of projecting separate black images colored by glasses of different colors. Cros, especially, had indicated the ternary orange, green and violet. As to the orthochromatism, which is the basis upon which is laid the possibility of separating the colors on the plate, it seems to us useless to remind the considerable works made by Mr. L. Vidal, they are present to the memory of every one who practices photography.

This article was made when we learned not without a certain pleasure, *quelque peu chauvin*, that the whole process had been studied in France, and that, from 1886, in the laboratory of the Sorbonne, Mr. Lippmann showed to some privileged spectators proofs obtained in this manner. Thanks to Mr. Berget, we have had positive informations on the experiment. It is proper to report them.

Mr. Lippmann obtained his three proofs on a plate 13 x 18 centimetres; the camera was provided with three small lenses placed near each other and distance of 5 centimetres from axis to axis. The separation of the color was effected by means of three small tanks filled, for the blues, with a solution of copper sulphate; for the yellows, with a solution of potassium bichromate; for the reds, with a solution of heliantine. The spectroscope served to dose the coloration of the liquid. From the negative a diapositive was taken, then placed in a lantern for projection, and projected by means of the three lenses and colored tanks which had served to obtain the negative. The image was formed on the screen at the same distance, and in the dimensions of the model; one rendered the image smaller by interposing a large convergent lens, which at the same time admitted to draw the screen nearer; one enlarged it, on the contrary, by using a divergent lens.

With his usual modesty, Mr. Lippmann did not give any publicity to this discovery; it did not find that the process had a sufficiently characterized scientific importance. Still less had he the idea of taking protecting patents. Moreover, this scientific disinterestedness of the learned inventor has been put into evidence in a too

complete manner, by the curious application of the principle of the interference, to insist on this point. It remains to say that, although confined in a laboratory, the experiments have been known by a great number of French and stranger savants.

We are pursuaded that Mr. Ives must have discovered the projection in color, without knowing the works of Mr. Lippmann, as Scheele and Priestley discovered oxygen at the same time; but we find useful, that the new world, which has taken the habit of changing the *états civils* and give to Americus Vespucius the glory of Columbus, cannot here baptize this discovery with another name than that of he who has really right to it.

H. Fourtier.

Notes and News.

Frank A. Brownell, manufacturer of photographic goods, at Rochester, sustained a loss by fire April 1st.

F. H. Hull, dealer in photographic materials, Providence, R. I., reports that he has a few copies of the "Annual for 1892," still unsold, which he shall be glad to send to those in search of the book.

By a slip of the pen Syracuse was written, instead of Rochester, as the city where the Bausch & Lomb Optical Co. are erecting their new buildings.

Watch Presentation.—At a meeting of the Photographic Section of the American Institute, held April 5th, the members of that Section presented Mr. O G. Mason with a gold watch.

It was the occasion of Mr. Mason's twenty-fifth anniversary as Secretary of the Photographic Section, and was a fitting expression of the affectionate esteem in which Mr. Mason is held.

Frederick E. Ives sailed for England Saturday morning, April 16th, to be gone two months. After giving his lectures before the Royal Institution of Great Britain, he will travel on the Continent with his patented camera for making three negatives simultaneously for his color photographs, returning to this country about July 1st. He then expects to repair to the Yellowstone National Park, and complete the collection of color photographs which he commenced to make in that wonderfully picturesque region one year ago. Mr. W. N. Jennings will accompany him on the latter trip.

W. N. Jennings, the well-known lightning photographer, and the lecturer for Mr. Ives, the color photographer, came to New York last week with Mr. Ives, to see him off for Europe. Mr. Jennings reports some interesting experiments in his favorite department of photographic work—photographing lightning-flashes.

H. S. Bellsmith, the enterprising photographer of Denver, Colorado, was in New York last week, and reports a flourishing state of affairs in Denver. Mr. Bellsmith feels very much gratified at the success which he has achieved during the past two years as a high-class photographer in Denver. He is making an extended trip throughout the East, in search of information, and a well-earned rest.

M'Comb's Photographic Feat.—Central Park at the Seventh Avenue and Fifty-ninth Street entrance was the scene of a very enterprising feat of photography. J. Jennings McComb, owner of the Navarro Flats, has for long past been considerably exercised in mind at his inability to find any coign of vantage from which a photograph could be taken of his mammoth property. Finally the idea of building an impromptu Eiffel Tower in the Park, so as to overlook the obstructing trees, struck him. He obtained a permit from the Park Board, and on Wednesday night fifteen carpenters began the novel erection on a grassy knoll about fifty feet to the left of the Seventh Avenue entrance. The understanding with the Park Board was that the tower should be erected during the night, the photograph taken in the early morning, and the whole structure taken down before 10 A.M. But it was not till late in the afternoon that the structure, standing sixty-four feet above the ground level, and topped with a platform eight feet square for the use of the photographer, was completed.

James Hall, Jr., and Joseph Gray, of the firm of George P. Hall, 157 Fulton Street, mounted to the top of the tower. They took fifteen pictures, of different sizes, under a cloudy but favorable light.

Albert Sellner, of 129 South 4th Street, Quincy, Ill., having purchased the entire photographic stock of Messrs. Miller & Arthur, of that city, will continue the business in a manner to give satisfaction to all concerned.

Wedding Bells.—Cards are out for the wedding of Fred. Eugene Drew, the popular salesman of Horgan, Robey & Co, and Nellie Elizabeth Knowlton, of Rockland, Me., Tuesday, April 26th. A reception will be held Wednesday evening, May 25th, by the young couple, at 315 Saratoga Street, East Boston.

"Annuals" for 1891.—Charles Lawrence, the enterprising photographic merchant, reports a few copies left of "The American Annual of Photography" for 1891, which he will dispose of at the regular rate. Those in search of this issue to complete their files will do well to order at once, and secure the missing copy before they are sold.

Works of Art by Twelve Famous Artists.—Sometimes a magazine varies its plan of make-up for a single number, in a way that makes that issue unique. The *Cosmopolitan* published one number some months ago filled entirely with contributions from women. In the same way the May issue of the *Cosmopolitan* will be noteworthy on account of the change in the style of illustration. With hardly an exception, the number is entirely made up of original works of art, and all by the best artists that could be found. There has never been a number of any magazine that contained so high a class of illustration, and the names of Walter Crane, the English decorator, W. M. Chase, E. W. Kemble, F. Remington, C. S. Reinhart, etc., are enough to distinguish the issue alone.

Photographic Societies.

THE SOCIETY OF AMATEUR PHOTOGRAPHERS OF NEW YORK,

At its annual meeting on Tuesday evening, April 12, 1892, elected the following officers and directors: President, R. A. B. Dayton; Vice-President, L. B. Schram; Recording Secretary, T. J. Burton; Corresponding Secretary, W. F. Hapgood; Treasurer, C. C. Roumage. Directors: James H. Stebbins, Jr., R. L. Bracklow, J. Wells Champney, James Spies, F. C. Elgar, E. Warrin, H. S. Mack, H. A. Smith.

THE NEWARK CAMERA CLUB.

The annual meeting of the Newark Camera Club was held at the Club rooms, Monday evening, April 11th.

The following officers were elected for the ensuing year: President, Paul L. V. Thiery; Vice-President, Thos. A. Hine; Secretary, David S. Plumb; Treasurer, Frederick T. Feary.

HOBOKEN CAMERA CLUB.

A fortnight ago Miss Catherine Weed Barnes gave a conference before the Hoboken Camera Club on the various processes by which lantern slides can be made. Miss Barnes is an elegant speaker and an enthusiastic photographer, whose productions are much appreciated by artists. Of course, she treated her subject in a masterly manner, explaining by a clear and methodical method how slides are obtained to perfection, which she illustrated by beautiful projections from her own diapositives.

Miss Barnes after showing the utility of projections in lectures relating to almost every subject, but especially to travels and scientific demonstrations, and also for entertainments and instructive recreations at home in the long evenings of winter, rightly insisted on the advantges of making slides by the camera. "Some of the advantages in this way of making slides," she remarked, "are that you can overcome defects in the negative, leave out any part that is wished, enlarge or reduce if desired, and what always seems miraculous to the uninitiated, make an exposure, develop the plate and make a slide from the wet negative in a very short space of time, which is, of course, impossible by contact.

We will not follow Miss Barnes in the various phases of her conference, the readers of the Times, which she honors occasionally with communications, know her proficiency and her literary attainment. However, we cannot refrain to report the good advises she gave to the young members of the club, in the perusion of her discourse. "You will only get from photography that which you give it, but one can give a good deal, and if you make yourself believe that, in it, no art is possible, you will certainly never find any. He who seeks will find. To succeed you must read intelligently, study carefully, believe it is worth while to give your best attention to camera work, and then translate your study into practice, watching critically every step and cutting places for your feet as do the climbers on the Alpine glaciers."

At the conclusion of the conference Miss Barnes was felicitated by the prominent members of the club, and enthusiastic applause followed.

At the last meeting of the club the following officers were elected: President, F. A. Muench; Vice-President, A. L. Smith; Treasurer, C. L. A. Beckers; Secretary, Geo. H. Steljes; Corresponding Secretary, R. Hartmann; Custodian, H. E. Wolff. House Committee, Geo. E. Mott, L. R. Trickel. Entertainment Committee, A. W. Hersog, A. J. Thomas, G. Klinge and A. Beckers.

The Editorial Table.

Fourtier, H., "Dictionaire Pratique de Chimic Photographie," containing a methodic study of the various bodies used in photography and usual notions of chemistry. In 8 with figures. Published by Gauthier Villars, Paris; fcs. 8.

The author discarding the scientific theory, confines himself exclusively to the practical part in order to make of the dictionary a really useful book, giving the value, the rational method of employing and the special properties of the bodies treated.

This dictionary also contains exact indications on the practical analyses and the manipulations of the laboratory and tables of the reactions.

Our French-speaking readers will find this book very useful, indeed.

Mr. J. Q. S. sent us from Hoquiam, W., views on aristotype paper illustrating that section of Washington (Gray's Harbor), its game, etc. These views are very picturesque and the photographs excellent, beautiful without an exception. Our compliments!

Mr. S. says that some of the pictures are toned by the bicarbonate of soda process (and the tone is a very brilliant red-brown) and others by the combination toning and fixing bath. "The latter," says he, "will very likely fade, turn yellow, or do something funny, as I have learned by sad experience.

We have received from F. E. H., of Salem, N. C., half a dozen of photographs which are by no means bad, for a few months' old photographer. Want of exposure is the general fault, but it is common with all the beginners, and the development seems to be made in a kind of rough manner.

Amongst these pictures there are some quite interesting. "The Moravian Grave-yard" shows a singular custom which prevails among the denomination. Male children are all buried in one portion of *God's acre*, and female in quite another place. Grown persons are also separately buried in like manner. No tombstones are allowed to stand. The first slab dates from 1731.

We have recently heard the highest words of praise from several sources for the Harvard dry-plate. This excellent brand of dry-plates is evidently making its way.

We have before us John Griffin & Son, ltd., the 1892 spring price list of photographic novelties. It is a very finely illustrated catalogue of new apparatus sold by this reliable London firm. We have specially remarked "The Griffins'" hand camera. It possesses many advantages over those of other English makes, by the facility with which all the handlings can be done. The Guine-and-a-half magazine detective is also a very good apparatus, containing twelve plates. Other novelties are advertised. Our English cousins will be quite embarrassed to select an apparatus among so many good ones.

The World's Columbian Exposition.—Send 50 cents to Bond & Co., 576 Rookery, Chicago, and you will receive, post-paid, a four hundred page advance Guide to the Exposition, with elegant engravings of the grounds and buildings, portraits of its leading spirits, and a map of the city of Chicago; all of the rules governing the Exposition and exhibitors, and all information which can be given out in advance of its opening. Also, other engravings and printed information will be sent you as published. It will be a very valuable book, and every person should secure a copy.

PHANTASIA GROTESQUE PHOTOGRAPHIQUE.

Atripodian creature, with cyclopian eye,
That takes in all objects both far and nigh,
Can wrestle and tussel, with athletic muscle,
Make e'en a rheumatic become acrobatic,
Take in an eagle as well as a fly.

An appetite almost insatiate,
Every sort of a creature is found on its plate,
All sorts of food goes under its hood,
Also has every mood from indifferent to good,
Is known and useful in every state.

But quite unlike bovine of bashau I ween,
Unheard are its bellows although they are seen,
Its style is quite pointed, its limbs double-jointed,
Its work can be trusted if rightly adjusted,
It is pleasing wherever it's seen.

It is all the same if you frown or you smile,
'Twill return what you give in a very short while,
The rich and the poor go in at its door,
The lad and the lass look into its glass,
It can see for many a mile.

It sometimes is humorous, sometimes pathetic,
Its tastes on the whole are very esthetic,
Though it boasts of no brains it will add to your gains,
Makes plainness or beauty, attends to its duty,
Makes an excellent tonic, a good dietetic.

It always is true to every expression,
Use it just right it will make an impression,
For work or for play, it has many a way,
Has helped some to fame, has many a name,
Its views are correct without a digression.

You can call it a camera, camerette, or Kodak,
One name is petite, another is knack,
But you'll find this is true, to get a good view,
If you uncap it, or skillfully snap it,
You can have a return that in nothing need lack.

J. R. Smith.

Queries and Answers.

241 H. P. R., New York.—I find that the following toning bath, No. 96, page 270, of the "Annual" of 1892:

A.

Water	20 ounces
Sulf. cyanate ammonium	1 ounce
Alum	1 ounce
Saturated solution carbonate ammonium	20 drops

B.

Water	50 ounces
Chloride of gold	15 grains

on N. Y. aristo paper, when the bath is newly made does not give me a dense black tone, but after it is a month old I get this desirable density but with a softened emulsion, and when the print is immersed in the hypo this density disappears with very brilliant whites. As I have tried many ways to obviate this without success I am forced to ask your kind assistance. If you can give me through your valuable columns a better formula please do so.

241 *Answer.*—Notwithstanding the great popularity of and the many conveniences offered by the combined fixing and toning bath, its many valuable points cannot be doubted.

We have ourselves often noticed how differently one bath works with different paper, and for that reason we are thinking your bath may work well with one brand of paper, with another but very poorly perhaps.

When one is very particular about a certain tone, it would be best to fix and tone separately, when the action of the gold can be better controlled and the effect be more decided.

An acetate bath, or the orthodox borax solution does very well. See formula 82 and 91, pages 268 and 269, "American Annual of Photography" for 1892.

242 PRESTON WRIGHT.—I have read in foreign papers of two new developing agents named methol and glycin; can I obtain the articles through Scovill's, and have you a formula how to compound them?

242 *Answer.*—Methol and glycin have not yet come to this country, but will be here pretty soon. Formulas to compound the developer will be published in an early issue of THE PHOTOGRAPHIC TIMES.

243 NATHAN BEERS: What is aristotype?

243 *Answer.*—Aristo, omega, delta, and a great many other similar printing-out papers, are coated with chloride of silver gelatine or collodion emulsion. Wharton Simpson, an English photographer of renown, proposed this method of printing, but it was left to Liesegang, of Düsseldorf, and Obernetter, of Munich, to perfect it and make it practical.

Aristo paper of any kind is the most convenient for amateur use, because of the easy method of handling it; there is no fuming or washing before toning required, and toning and fixing is done within a few minutes and in one solution.

Were we asked if prints toned by this process are as permanent as albumen prints, we would simply answer: Call again in five or ten years.

THE PHOTOGRAPHIC TIMES.

AN ILLUSTRATED WEEKLY JOURNAL DEVOTED TO THE ART, SCIENCE AND ADVANCEMENT OF PHOTOGRAPHY.

Issued every Friday.

W. I. LINCOLN ADAMS, Editor.

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423 Broome Street, New York.

Commercial Intelligence.

You can depend on our using "The Times," as we know its power.

E. W. NEWCOMB & CO.,
Dealers in Photographic Apparatus and Supplies,
New York City.

I received a copy of "The Photographic Times," with which I am greatly pleased.

A. M. LAW, Spartanburgh, S. C.

I still find that I cannot get along without "The Times."

C. H. MILLER, Philadelphia.

A dissatisfied subscriber writes: "I tell you candidly that I should immediately discontinue my subscription could I do so without injury to myself, but I need the information you manage to scrape together."

"We have always found your journal an excellent medium to advertise in; like the American Annual, it should be more patronized by the dealers. We think we can say we have received more inquiries from our notice in your publication than in any others we advertise in. This is not taffy."

W. P. BUCHANAN,
Successor to Buchanan, Bromley & Co.
Philadelphia, Pa.

If you have anything to buy, sell or exchange, advertise it in THE PHOTOGRAPHIC TIMES. It will pay you. (See note above by W. P. Buchanan.)

"It Stands at the Head."—Engraving and photography have come to be twin arts. Admiration for one induces a like sentiment for the other and one of the most welcome exchanges that comes to our table is THE PHOTOGRAPHIC TIMES. For the enthusiastic amateur or the professional, it is full of valuable suggestions to the art of photography, while for those who love the beautiful we commend its handsome engravures, one of which prefaces its pages each week. It stands at the head of the photographic journals of the country.—*Illustrated Pacific States* for March.

ALL THAT ARE LEFT.

The following circular was sent out by the publishers of "The American Annual of Photography," and below we give the replies which were received up to going to press:

PHOTOGRAPHIC MERCHANTS: We take pleasure in advising you of our great success in selling "The Photographic Times Annual" for 1892. Though over 16,000 copies were printed, the entire edition has been exhausted. Orders, however, are continuing to come in, which we are now unable to fill and if you have any of the books remaining in stock, we shall take pleasure in advertising that fact in THE PHOTOGRAPHIC TIMES, free of charge, notifying those in search of the book where they may procure it.

Yours truly,
THE SCOVILL & ADAMS CO.
(Publication Department.)

New York, April 12, 1892.

WE HAVE two 50-cent editions on hand.

Yours, etc,.
CRANSTON & CO.

WE HAVE one of these books on hand, and as we have no particular use for it would dispose of it.

Yours, very truly,
ACME BURNISHER CO.
J. C. H.

H. L. ROBERTS & CO., of Philadelphia, report seven copies on hand.

THE BLAIR CAMERA CO.—We have a very few.

SARGENT & CO., of Cleveland.—We can fill orders for a reasonable amount.

DOUGLASS & SHUEY CO., of Chicago.—We can spare ten copies in cloth.

The New York Aristotype Co. is now preparing a mat-surface printing-out paper that defies in printing qualities all rivals of this now very popular method.

The paper needs no fuming, prints very rapidly in subdued light, and renders beautiful half-tones and brilliancy to proofs made from feeble negatives. After washing the proof, it is toned in any of the usual alkaline toning baths, provided they contain no salt (chloride of sodium).

The toning of this paper permits of a great latitude in working, and tones from a fine scarlet, through all intermediate nuances to a positive black one. No particular precautions are recommended in toning, with the exception that the gold bath should be considerably weaker than it is used for albumen prints.

Business Notices.

FOR SALE.—$400.00 cash; gallery established 1881, on Main Street, Norfolk, Va.; must be sold by May 1st. Address owner, I. D. BOYCE,
1113 F Street, Washington, D. C.

RAPID RECTILINEAR LENSES AT COST.—4 x 5, $5; 5x7, $12; 5x8, $7; 6½x8½, $8; 8x10, $12; 10x12, $18; 11x14, $24. Write for price list.
W. P. BUCHANAN, Importer, Philadelphia.

BACK NUMBERS OF SUN AND SHADE, including Nos. 3, 10, 11 and later issues, in perfect condition, 25 cents each. Regular price is 40 cents, and the earlier numbers are at a premium. THE PHOTOGRAPHIC TIMES PUBLISHING ASSOCIATION.

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GALLERY FOR SALE.—In a city of 13,000; only $300. Address SCHAFFER BROS.,
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THE UNDERSIGNED has a few 6x5 Dallmeyer Rapid Rectilinear Lenses which he will sell for 20 per cent. from list prices. These lenses are a late importation and are all warranted. Address "TOURIST,"
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THE FINEST Platinotype Solar Enlargements and contact prints, in black and sepia, are made by
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Send for price lists.

FOR SALE.—Centrally located gallery in Washington, D. C., doing business in photographs up to 18 x 22, crayons and pastels. Large stock of frames. Wish to retire on account of health. Address
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935 Pennsylvania Ave., Washington, D. C.

A MATCHED PAIR OF ORIGINAL SINGLE Dallmeyer Lenses for stereoscopic work for sale at a bargain—$25 C.O.D; or remit the amount in check, money order or postal note. "MATCHED PAIR,"
Care of THE PHOTOGRAPHIC TIMES

LANTERN-SLIDES AND HOW TO MAKE THEM, by A. R. DRESSER.—A new book, very complete and thoroughly practical. Only 25 cents. Sent postpaid on receipt of price by THE SCOVILL & ADAMS CO.

A SPLENDID OPPORTUNITY FOR A FIRST-CLASS PHOTOGRAPHER.—In the large and beautiful city of Guadalajara, with 120,000 inhabitants—the second city in Mexico. For sale or to rent—after having made its owner a fortune—a photographic gallery beautifully situated in the centre of the city, completely furnished with all modern appliances. To be sold at cost price, $4,000, or for rent at $150 per month, including living apartments. First-class custom, on the basis of $12 for Imperials. For further particulars, address Sr. Lic. J. MIGUEL G. HERMOSILLO, Apartado 12, Guadalajara; or O. DE LA MORA, 2da San Francisco, 4, Fotógrafo, Mexico City.

THE finest-fitted Dark-Rooms in the United States are open for the accommodation of Amateurs, at 122 W. 36th Street. DARLING, Photographer.

THE ELDORADO BENCH AND WALL COMBINATION makes eight different combinations, every one of which is effective and artistic. Just introduced by THE SCOVILL & ADAMS CO. Price $20.00.

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R. H. MORAN,
396 Broome Street, New York.

SEND FOR LIST of new "M. & V." Lenses to THE SCOVILL & ADAMS CO.

A SURE WAY TO PREVENT BLISTERS.—Use Haworth's Sensitized Paper. It won't blister. Spalding has it, so have Obrig Camera Co., and Z. T. Benson.
JOHN HAWORTH, Manufacturer, Phila.

NO FUMING, NO BLISTERS.—Experiment with all the "papers" advertised, and learn. But when you want to make choice, spotless prints use WISSAHICKON SENSITIZED ALBUMEN PAPER. Tone it in compound bath and squeegee on ferro plate, if you like. Send 2 cent stamp for 4x5 sample to JOHN HAWORTH,
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FOR SALE.—The best gallery in a town of 35,000. Or will lease to responsible party. Owner going out of business. Address
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GRIT VARNISH.—The best retouching medium in the market; 6-ounce bottle, 40 cts.
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THE CHAUTAUQUA SCHOOL OF PHOTOGRAPHY.

Several ladies and gentlemen, amateur photographers not connected with this institution, have expressed a desire to contribute specimens of their skill to the annual School Exhibtion held on the Assembly Grounds in July and August. In fact, several who have such have already sent exhibits.

We shall receive with pleasure such photographs, and invite all amateurs and professionals to assist us in making the Chautauqua School Exhibition of 1893 superior to any of its predecessors.

For particulars apply to

CHARLES EHRMANN,
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423 Broome St., New York; after July 1st to Chautauqua Assembly Grounds.

LANGILL. 10 East 14th Street, makes all kinds of outdoor negatives. Portrait photographers will do well to consult him when such is required. First prize for Architectural photographs, P. A. of A.

S. P. C. EIKOQUINOL DEVELOPER.—This "ne plus ultra" developer for timed and instantaneous exposures, lantern slides and all other kinds of transparencies, photo-mechanical work and bromide paper prints is now in stock and for sale at 35 cents per bottle of 8 ounces. No other developer is now used by the members of Chautauqua School of Photography; no other has attained to equally fine results.

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A RARE OPPORTUNITY.—Any first-class photographer, looking for a location for a gallery, can obtain valuable information by addressing G. O. SHIELDS, Eddy, New Mexico.

PARA-AMIDOPHENOL HYDROCHLORATE.

THE DEVELOPING AGENT OF THE FUTURE.

With para-amidophenol there is no staining of the film, as with eikonogen and hydrochinon when development is prolonged, absolute transparency and opacity is secured, and the time of exposure is reduced about 30 per cent. without injury to half-tones and middle-tints.

FORMULA FOR DEVELOPER.

Para-amidophenol (pure)	100 grains
Sodium sulphite (crystals)	3 ounces
Potassium carbonate	1½ ounces
Water	32 ounces

FOR USE.—Take 1 ounce of the above solution and from 2 to 4 ounces of water, according to the length of exposure.

The stronger the solution the greater the intensity of the resulting negative; the more diluted the solution the greater softness and more detail.

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SITUATIONS WANTED.

A first-class operator and retoucher desires to secure a situation. Best of references. G. Vincent Buck, 531 Warren St., Hudson, N. Y.

Young man wishes to have a situation in first-class gallery, where he would have a chance to learn the business thoroughly. Boston and vicinity preferred. Address W. T. Weston, 234 Princeton St., East Boston, Mass.

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First-class printer and toner of experience and ability, capable of working Albumen and Aristo paper successfully, desires position; highest reference. Address Box 33, No. 152 Sixth Avenue, New York.

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The Practice of Photography, by Robert Hunt. London, R. Griffin & Co , 1857. Limp cloth, pp. 126.	25
History of Photography, Tissandier, translated by Thomson, London, Sampson Low & Co., 1876. Cloth, 322 pp. (binding stained)	25
The Carbon Process. Drummond, New York, 1868. pp. 113, paper	10
Photo-micrographs and How to Make Them. Sternberg, Boston, 1883 (pub. at $3.50; good copy)	1 00
American Annual Index, 1891.	05
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Seely's American Journal of Photography, Vol. VI., Nos. 1–19 (July, 1863, to April, 1864).

Humphrey's Journal, Vol. XV., 1863, Nos. 10, 15, 16, 20, 21, 22, 23, 24.

Photographische Monatshefte, Nos. 7–19 (December, 1862, to December, 1863).

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American Journal of Photography (McCollin), Vol. V., No. 2; Vol. XI. (1890), complete, except Nos. 1 and 4. Vol. XII., except January, February and June.

Bulletin de la Société Française de Photographie. 2d series. Vol. VII., Nos. 1–6.

Anthony's Bulletin, Vol. XIX. (1888), complete, Nos. 1–24.

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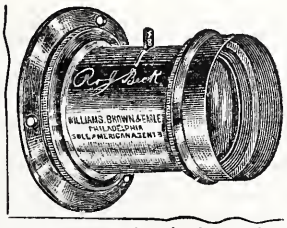
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ARTISTIC LANDSCAPES FROM NATURE,
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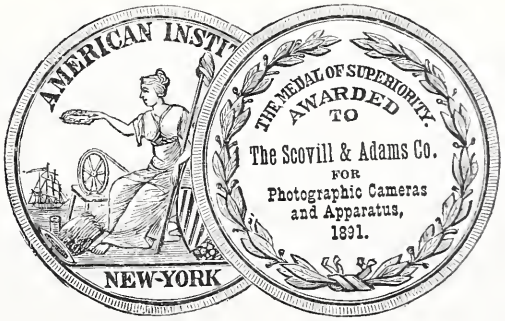
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for photographic cameras and apparatus, 1891.

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Photographers can increase their business during the holidays by advocating the Platinotype.

Send 30 cents for a specimen print, portrait or landscape, on our new heavy India Tint Mounts.

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"SIMPLEX" CAMERA STAND.

Cheapest and Best ever made.
No heavy weights or springs connected with its structure. A Camera weighing 100 lbs. can be elevated with as much ease as one weighing only 20 lbs. For sale by all Photographic Supply Houses. For catalogue, address
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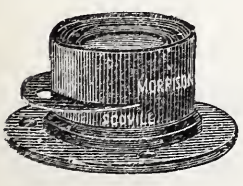
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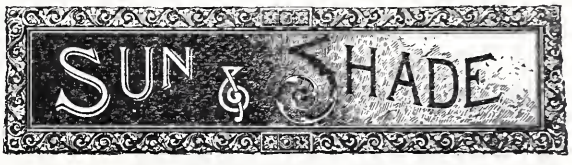
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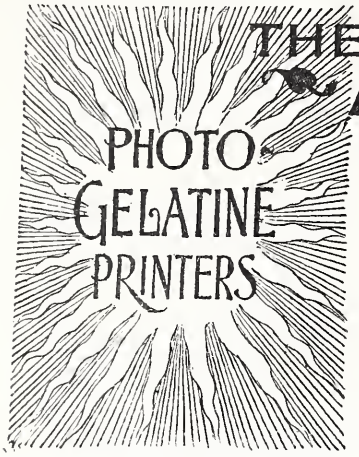
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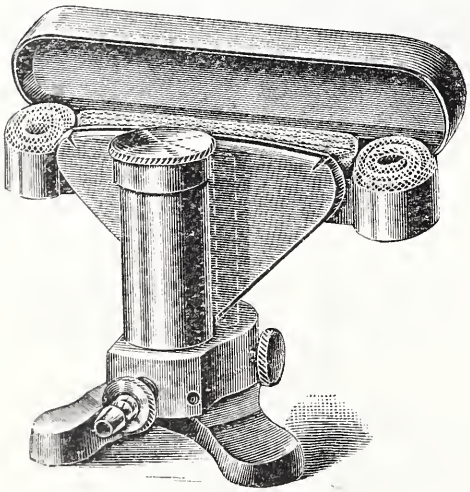
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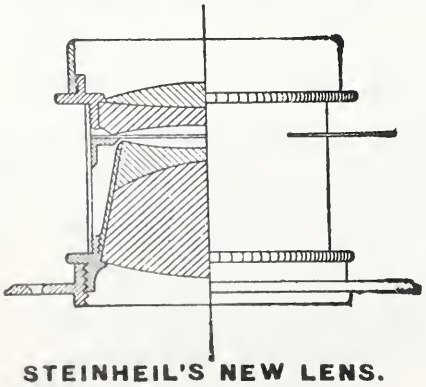
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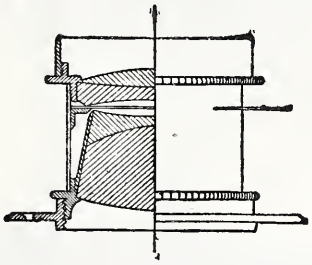
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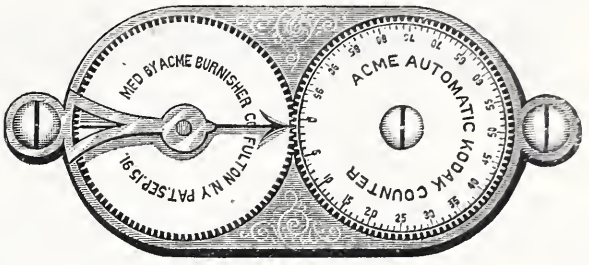
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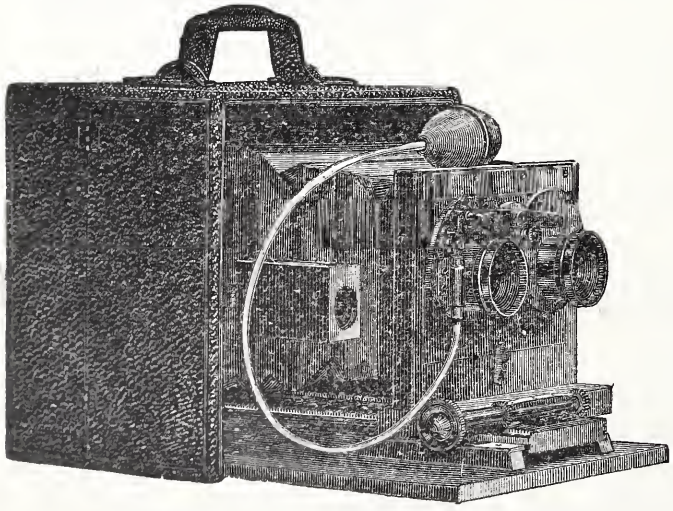
It is commonly known that of all pictures, those which are arranged to give the stereoscopic effect when viewed in a stereoscope, convey the true impression of perspective and solidity. It seems strange, indeed, that of the myriads of instantaneous pictures made, so few are taken with reference to their future use in connection with the stereoscope, *for it is only by that means that the idea of perspective and solidity can be conveyed.* We can only assign as the reason the present almost universal use of hand cameras, and that none of them have, up to this time, been arranged for stereoscopic pictures.

There is a much over-worked phrase—"the long felt want," but we think that just that, literally, will be met by the new hand camera which the American Optical Company have just finished.

The first illustration shows one of these cameras closed, and you will observe there is no external opening for finder, lens or anything to indicate that the leather-covered case contains the appliances which go to make up an instantaneous camera.

This camera measures eight inches high, nine inches long and five inches wide; its weight is about five pounds. It has a screw plate underneath, so that it may be used with a tripod. It has a door in the back of the case, and through that opening the image thrown by the lenses may be seen on the ground-glass focusing screen.

The second illustration shows the appearance of the camera when open. The pair of Optimus Lenses is fitted with a triplex stereoscopic shutter with pneumatic release, made by the Prosch Manufacturing Company.



The camera is furnished with a focusing scale and a reversible finder. Either half of the stereo. negatives when cut in two are of a size suitable for making lantern slides from.

This camera may also be used to take a single picture of the size of the ground-glass focusing screen (5x7 inches), either vertical or horizontal. In the former case the reversible finder comes into use. The septum which divides the camera inside is arranged so that it may be easily taken out, the stereo. lenses are mounted on a removable front, and an extra front is furnished on which may be placed any lens of not over seven and a half inches equivalent focus.

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With Roll Holder and Double Plate Holder.

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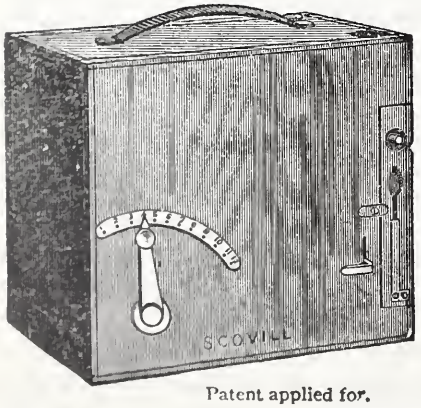
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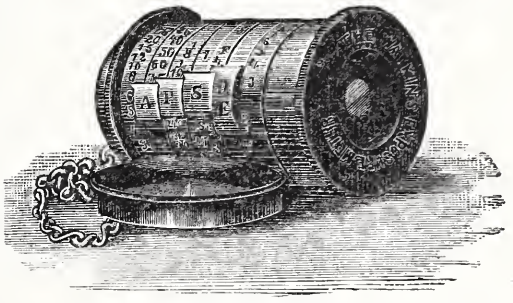
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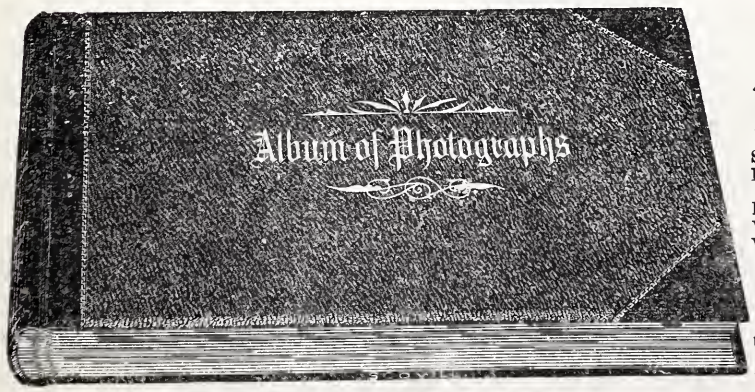
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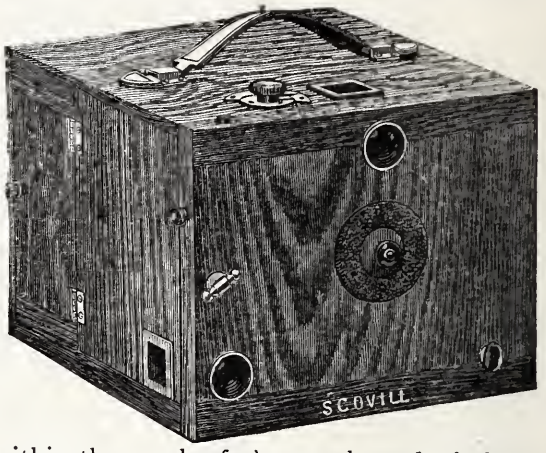
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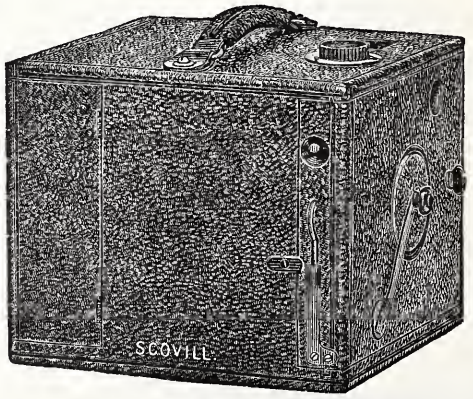
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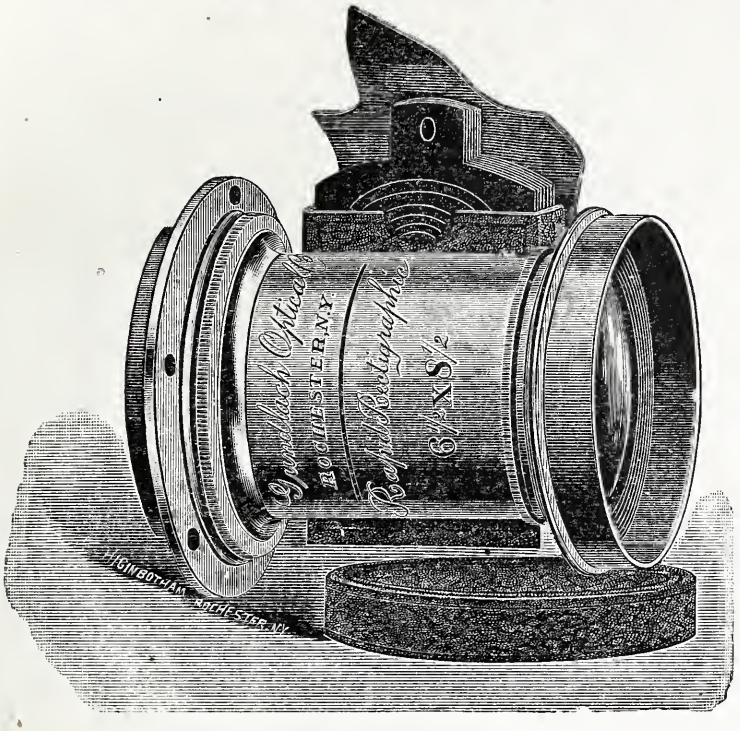
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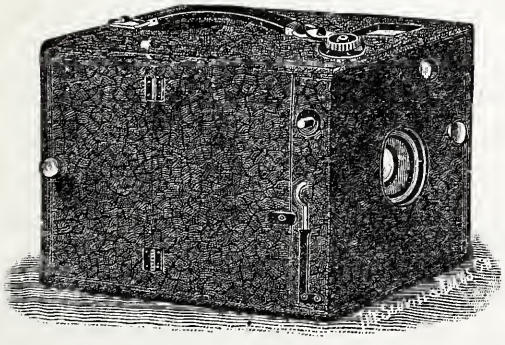
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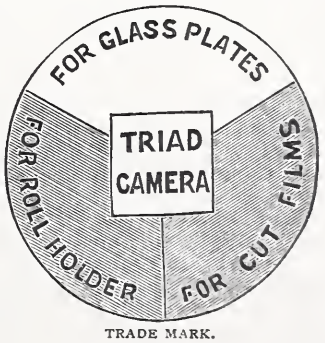
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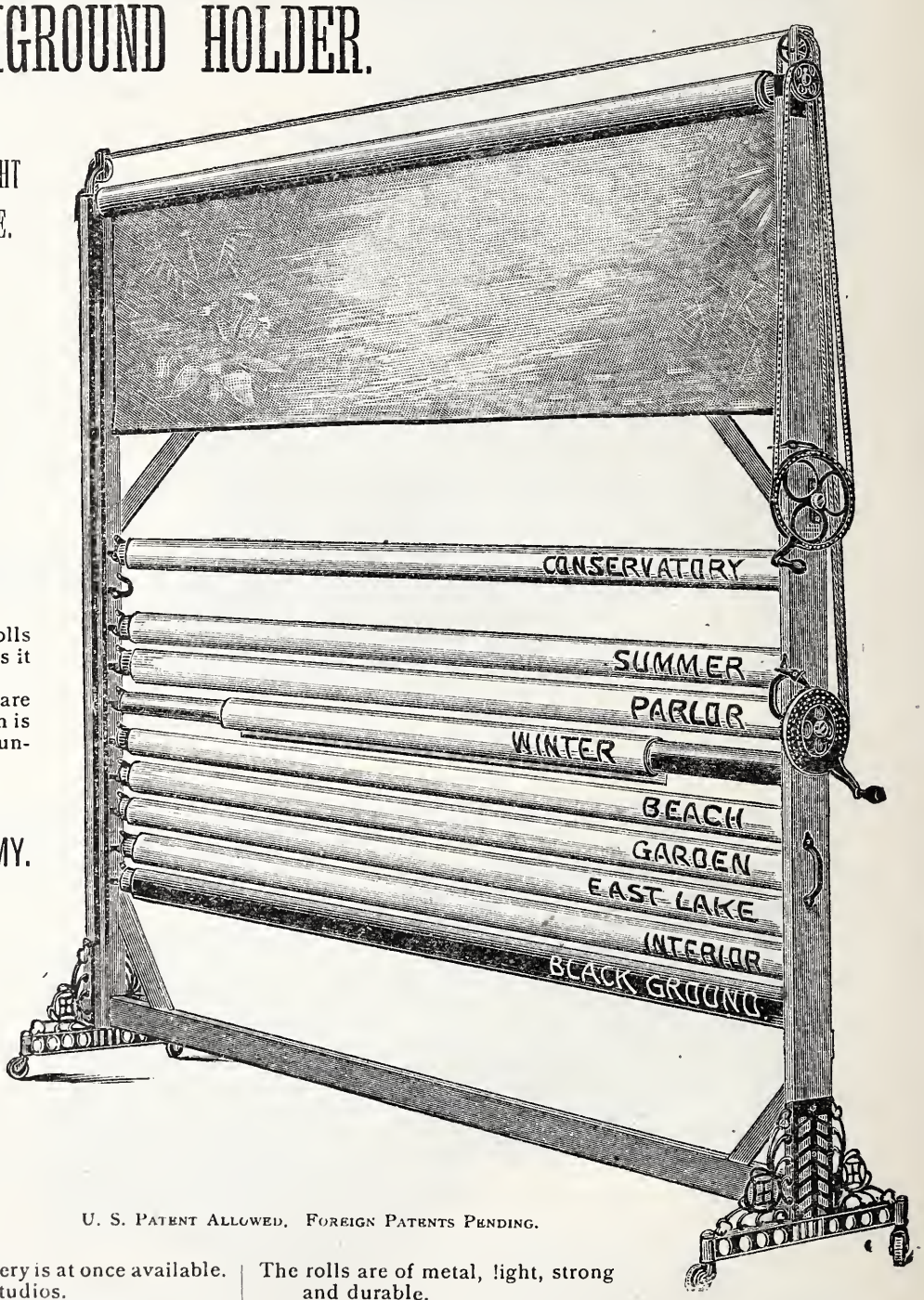
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On February 15th, the first edition of 16,000 copies of "The American Annual of Photography and Photographic Times Almanac" for 1892, being nearly exhausted, the publishers issued a circular inquiring concerning the number of books unsold, if any, and also concerning the demand which still existed for the book, with a view of determining the advisability of issuing a second edition. In response to this circular about fifty answers were received, from which the following are quoted at random:

Felix Reifschneider, Jr.: "We have not got one copy of the fifty copies we had. They sold very well, twenty-five the very first day I had them in."

Thos. H. McCollin & Co.: "'The Times Annual' for 1892 is a great success. We have had four lots and have only a half dozen copies on hand. There seems to be a steady demand for it."

W. C. Russell: "Have just sold out, . . . and will say I have never yet been stuck by having any of the American Annuals left on hand."

F. Hendricks & Co.: "We have on hand only five copies to-day of 'The Times Almanac.'"

Sweet, Wallach & Co.: "We have disposed thus far of over 250 copies. Think we will want more later."

Oscar Foss: "Of the 175 copies received from you not one now remains. I have ordered a few more copies, which will, I believe, supply the demand here. If I had ordered 250 copies instead of 175 I should have had no trouble in disposing of them this year."

B. Y. Morris: "I am entirely out of 'Annuals,' and will include in my next order some more."

B. C. Norrell: "My stock is exhausted. I may be able to dispose of more copies."

H. A. Hyatt: "May want about twenty-five more to carry me through the year."

Mullett Bros.: "May want about twelve copies more."

Charles Lawrence: "We are entirely out, and shall need a few more copies."

Zimmerman Bros.: "Have sold twice as many as we expected."

J. C. Sommerville: "We have disposed of 100 copies, and are not certain that we shall require any more."

Douglass & Shuey Co.: "Paper, all gone."

Robert Clark & Co.: "We have none left in stock of the 'American Annual of Photography and Photographic Times Almanac' for 1892."

Kimball & Mathews: "We are about out of the 'Annuals.'"

M. F. King: "I have none of the 'Annuals' left. Could sell a few more, most likely, if I had them."

Wilson-Hood Cheyney Co.: "We have three copies on hand, and shall order in half dozen lots as needed."

W. S. Bell: "We have no 'Times Annuals' in stock."

Barker & Starbird: "We have no over stock of the 'Annuals,' and although we received three separate orders from you, we may be obliged to give you a fourth, in the near future."

McCurdy & Durham: "We have sold all but one copy, and shall probably need more shortly."

Paul Roessler & Co.: "We have not now any of the 'American Annuals of Photography and Photographic Times Almanacs' for 1892, on hand."

Buchanan, Bromley & Co.: "We have on hand 11 copies of the 'Annual.' These will go very easily. If all our goods were as sure sale as these, we would be happy indeed."

J. N. McDonald: "I have no copies of 'The Times Annual' for 1892, in paper. I have ordered a dozen copies more."

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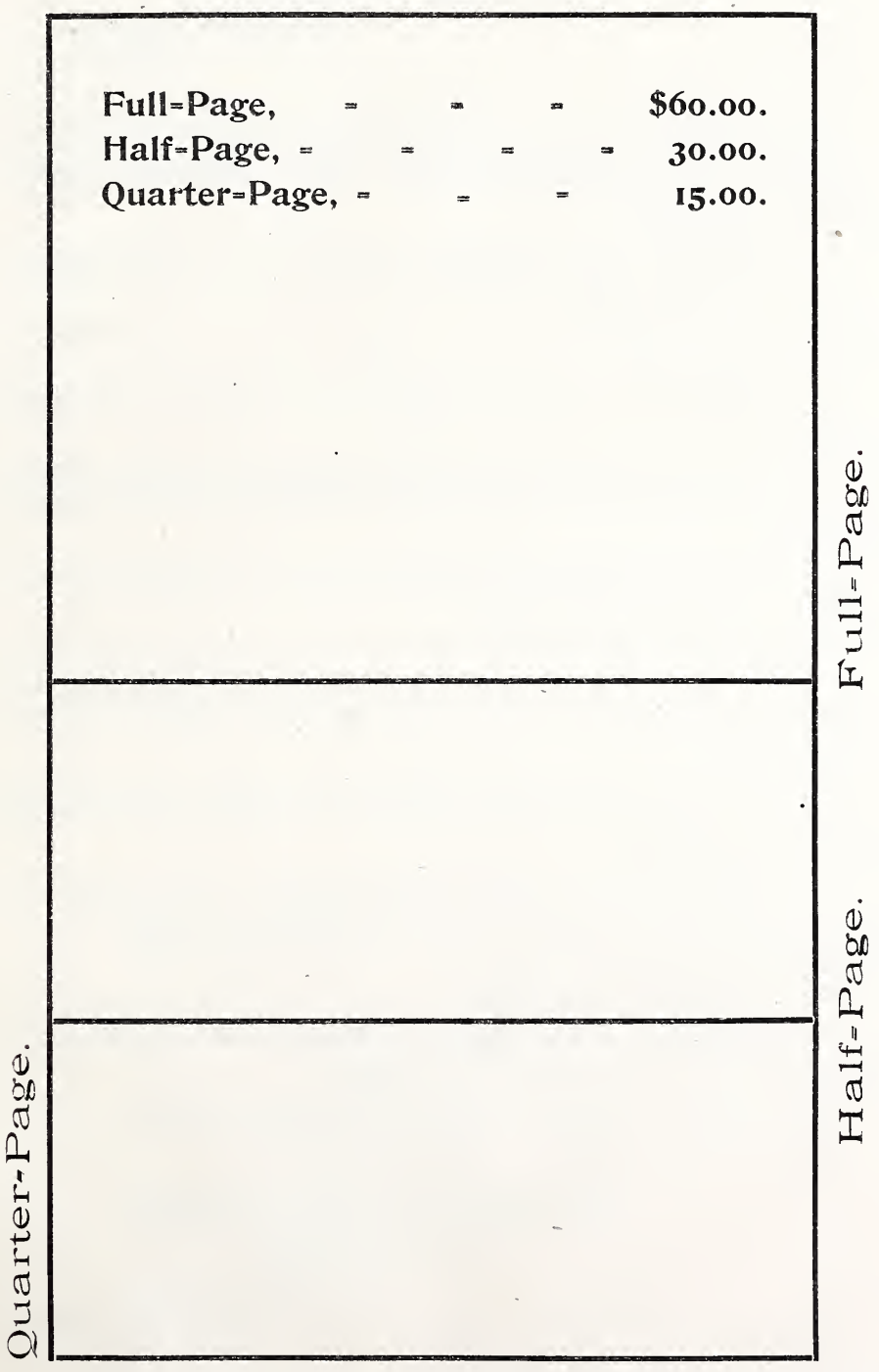
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Sweet Solitude

THE PHOTOGRAPHIC TIMES.

VOL. XXII. APRIL 29, 1892. No. 554.

"SWEET SOLITUDE."

SOME time ago we presented our readers with a landscape picture by Mr. T. C. Watkins, which was received with every mark of favorable appreciation. We, therefore, take especial pleasure in giving them this week another picture by the same gentleman of a similar subject. Like "The Turn of the Road," this landscape is to be found, in nature, near New Windsor-on-the-Hudson. It shows a lonely wood road, late in the autumn, and the dreamy effect produced by the obscuring of detail, the peculiar character of the picture itself, and the agreeable tone of the photogravure, together suggest and justify the pleasant title of the picture.

FORMULAS AND PROCESSES.

PERMANENT SENSITIVE PAPER.

Silver nitrate	2 ounces
Citric acid	1 ounce
Alcohol	1½ fluid ounce
Water	1 pint.

Float for three minutes (two in summer). Remove the paper from the silver bath by drawing it over a glass rod, blot off, and hang it up to dry. If well desiccated, which in damp weather requires the aid of heat, it will keep for several months when packed between dry sheets of blotting paper impregnated with sodium bicarbonate.

After sensitizing ten whole sheets of brilliant albumen paper, the silver bath should be strengthened by adding to it four ounces of a solution prepared in the same manner, but containing four ounces of silver nitrate.

Before printing, the sensitive paper thus prepared should be strongly fumed, that is, subjected to the fumes of ammonia for twenty minutes.

To tone, let the paper soak for fifteen or twenty minutes in soft water, then wash it in two changes of water at intervals of about ten minutes, then once in water in which has been previously dissolved a small quantity of bicarbonate of soda. This has for its object the neutralizing of the last traces of citric acid which may cause the precipitation of some gold chloride, and anyhow interfere with the regular action of the toning solution.

Tone with gold soda, fix, etc.

RESTORING PLATES EXPOSED TO LIGHT.

This is an old process worth remembering which we found again reprinted in *Scraps*.

Gelatine plates accidently exposed to light need not be thrown away. Make up the following solutions:

1.	Potassium bichromate	10 grains
	Water	1 ounce
2.	Potassium bromide	10 grains
	Hydrochloric acid	2 drops
	Water	1 ounce

Soak the plates in a bath containing equal parts of the above, wash thoroughly and dry in the dark. They can be then exposed in the camera; but as the sensitiveness is greatly impaired by this treatment, the exposure should be prolonged to perhaps ten times more than it would have been required in the original condition.

Plates giving green fog will, after this treatment, give clean images.

TONING ALBUMEN PAPER PRINTS WITH URANIUM.

The following bath gives splendid proofs, black, purple-brown or purple:

A.

Gold chloride	15 grains
Water	2 ounces

B.

Sodium bicarbonate	2 ounces
Citric acid	1½ ounces
Water	1 pint

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For use

Solution A..	2 ounces
Solution B.	1 pint
Water.	1 gallon
Calcium chloride.	15 grains
Uranium nitrate	15 grains

—*Photo News.*

Copying Engravings.

To copy an engraving and avoid the granulation from the paper it should be placed in a very open cone lined with white paper on every side, and one should expose for the whites without however giving a short exposure, else not enough opacity will be obtained.

The best developer is hydroquinone, which always tends to exaggerate the contrasts, but in the case in question it is exactly what is wanted. A good formula is the following:

Hydroquinone	125 grains
Sodium sulphite.	240 grains
Sodium carbonate	300 grains
Potassium bromide	2 to 3 grains
Water	1 quart

The negative should be fixed in an acid bath which, by sulphuration, somewhat increases the density:

Sodium hyposulphite	5 ounces
Citric acid	1 drachm
Chrome alum	2½ drachms
Water	16 ounces

Any veil between the lines are removed by iodide of cyanogen:

Potassium cyanide	3 drachms
Tincture of iodine	1 drachm
Alcohol	1 ounce
Water	1 pint

To intensify, the picture, thoroughly washed, is bleached by a solution of mercury bichloride, then washed, then flowed with

A.

Potassium cyanide	3¾ drachms
Water	10 ounces

B.

Silver nitrate	2 drachms
Water	6 ounces

Mix for use by equal volumes.

F. Schmidt, of Karlsruhe, has experimented with two new developers, *methyl-paramido*, *meta-kresol*, commonly spoken of as methol, and paraoxy-phenyl-glycin or glycin.

Both of these substances are solids, easily soluble in water, and exclude therefore a combination with concentrated solutions of caustic alkalies.

Methol with carbonated alkali equals rodinal in energy, the action of glycin is slower, but as we find both of the substances very soluble, any modification of the developing solutions is more easy accomplished than with rodinal. They are very permanent. Dilute solutions of rodinal assume a Burgundy red color. After a few minutes methol solutions turn slightly brown, not before eight days' standing, and those of glycin show a gold color in the same time. Glycin does not act as energetically as methol, but develops with most perfect clearness in the non-acted on portions of the negative.

The following formulæ have been recommended:

Methol.

Water.	3½ ounces
Cryst sodium sulphite.	60 grains
Methol.	8 grains
Potassium carbonate.	35 to 45 grains

Glycin.

Water.	3½ ounces
Cryst. sodium sulphite.	45 grains
Glycin.	15 grains

THE STUDIOS OF NEW YORK.

V.

Pach brothers are now at the corner of Broadway and Twenty-second Street. Their establishment extends through the whole block to Fifth Avenue. It is one of the largest in New York. With the exception of the parlor, all the rooms—and they are very large—are on the same floor: Two elegantly furnished *boudoirs* for ladies; three studios, one for copying, two developing rooms, "one would not be enough for our work," remarked Mr. Pach when we entered the dark ante-room of one of them; an immense finishing room, another for washing, intensifying and reducing the intensity of negatives; others for storing the same—over 150,000, and this number is rapidly increasing, for the Pach's are the photographers of nearly all the colleges in and around New York: Vassar, Princeton, Harvard, Yale, Columbia, West Point, etc., and in every one they have built a studio fitted with apparatus, etc.

Pach Brothers are not common photographers, they make good work and they are never satisfied with their excellence. All their groups made at the colleges are unsurpassed, their interiors—subjects so difficult to photograph well—truly very fine, and all the portraits exhibited in the reception room well executed, among them those of Comte de Paris, Blaine, Dr. Elliott, President McCosh, Seth Low, President of Columbia College, and other distinguished persons, whose names we do not

at present remember. The landscapes are also remarkable.

The main studio is lighted by a skylight whose top we find a little flat. There is too much diffused and reflected light in the room; and we think it would be an improvement to glaze the skylight with ground-glass and to substitute to the white shades curtains of neutral color to shut off more effectively the light not necessary for the lighting of the model, and avoid reflections.* As the skylight is now arranged it is certainly a difficulty to well manage the light, but Pach, Sr., who has special charge of the photo. department, and his principal operator, W. C. Farrand, seem not to have too much trouble in so doing, judging from the good work they make.

As every photographer we have visited, Pach develops by the tentative method, with pyro-soda, exclusively, after having given quite an extensive trial to hydroquinone, eikonogen, the mixed developers, etc.

Moreno is a painter who, after having for many years professed its art in New York, became a photographer. His photo-portraits, crayons, pastels, tell the merit of his artistic education and good taste.

The studies of Moreno, or motived poses of ladies, are gracious, well composed, and the portraits are treated in a simple manner, as it should be. The lighting is remarkable by the vigor and brilliancy of the contrast which does not exclude a perfect harmony of all the parts.

Among the pictures exhibited in the parlor of the studio in Fourteenth Street, there is one of a lady in a dancing attitude which is most remarkable not only as a marvel of photography, but also and principally as a composition gracious *au possible*. It is printed by the platinotype process which is constantly gaining the favor of the public.

Moreno has established another studio in Fifth Avenue, No. 38, which is richly and elegantly furnished. The ladies' *boudoir* is very pretty and there is in it a cabinet containing a secret safe for jewelries, etc., of which the key is in the possession of the ladies while they are sitting in the studio. This is a novelty.

The glass-room is, of course, provided with the best apparatus and all the appliances to direct, soften the light, etc. The skylight has the classic 45 degrees. The negatives are developed with pyro-soda. At night portraits are taken by flash light; they are good.

* See "The Lighting in Photographic Studios," by P. C. Duchochois. For sale by Scovill & Adams Co.

Messrs. Chs. H. Davis and E. Starr Sanford made on the 7th, 8th and 9th of April, the opening of their new studio, No. 246 Fifth Avenue, by an exhibition of pictures loaned by artists and original drawings from eminent illustrators, loaned by Mr. W. Lewis Frazer, of the *Century* Company, the whole being worth about $20,000, we have been told.

Space prevents us from describing all the pictures exhibited, we will cite *an hazard*. Excellent pen-and-ink drawings, some reproduced by the direct litho-photographic process, by R. B. Birch, T. de Thurlstrup and W. Faber; a crayon design by W. M. Chase; "Making Homeward Before a Norther" (sheep), a very bold and effective design, by J. A. S. Monks; landscapes by Smillie; "October Marshes," by W. C. Filler; "A Venetian Water Gate," a painting which recalled to use the manner and free brushing of Décamps, by Burr H. Nicholls; "Sweden Interiors," by T. de Thurlstrup; "Early Strollin' in the Park," by W. M. Chase; "Expectation," by H. Simon; "Gossip," a badly painted picture by J. G. Arter, etc., etc

Davis and Sandford's exhibition of specimens of their photographic works does them great honor. Their platinum prints (artist's proof) are very good, well composed with fine lighting effects. Other photographs on albumen, specially those of ladies and children deserve our praise.

The glass-room is well lighted, the walls a little light, perhaps, the apparatus, that of The Scovill & Adams Company.

The parlor neatly furnished, the pretty ladies' *boudoir*, the studio, all is *en suite* which is a desideratum now.

Davis and Sandford develop with pyro-soda.

The printing is done partly on albumen paper toned with gold-soda, partly on platinum paper, not the sepia; it does not give as brilliant, clean and pleasing tones.

ANDREW PRINGLE.

This well-known contributor to The Photographic Times* has already been made better acquainted to its readers through a portrait published several years ago, and a brief biographical sketch which was brought out in these columns at the same time. In response to our invitation for an autobiographical sketch, Mr. Pringle characteristically writes as follows:

"My biography has appeared so many times I fear people are sick of it.

"I was born in Edinburgh, 1850. English public

schools, where I wasted time learning Latin and Greek which has never been of any use to me since, were the next field of my operations; Cambridge followed. Was in a cavalry regiment for a short time, but did not like it or it me.

"Began photography about 1875 and worked hard at it ever since, except for two years, when I had no conveniences. Have worked every process of pure photography, more or less, and done an enormous amount of microscopical pho-



tography, to which I have apparently settled down during the last two or three years. My photographs of bacteria and pathological specimens adorn many books and are used regularly in several medical schools in lectures.

"Wife good-looking and as good as bonnie; five children! Bald on top; cultivating a bit of a 'tummy' lately! Never refuse a 'goak.'

"I have over 3,700 negatives of bacteria not to mention other medical subjects,

"Lastly, always yours, and your readers, truly,

Andrew Pringle.

THE CRITIC CRITICIZED.

"O that mine enemy would write a book!" Only Mr. J. Wells Champney is a friend of mine, and has but published a picture, as appears in the TIMES for April 8th. But what abundant opportunity does it not afford for criticism, and how strange it is that Mr. Champney, who has played the critic so often, should be guilty of such an inartistic result as his picture evidences. Although he gives the apology that "it is quite apparent by the position of the hats on the heads of my friend and his boy, that I (he) was aiming for portraits as well as landscape," was it necessary for a teacher of others to perpetrate the incongruous relation of "my friend and his boy," and "the hats," to this picturesque bit of scenery? What *was* Mr. Champney *really* aiming at, landscape or portraiture? If the former, and the scene seems to have been carefully selected, why have marred it with figures that do not bear the slightest relation to it, either in artistic connection, pose, or costume? If the latter, why distract from the figures by such a peculiarly interesting background, which is out of all proportion to the portraiture? The one or the other must be wrong.

The picture is entitled "The North Parish, Greenfield, Mass.," and as mention is only made incidentally of the friend and his boy, it must be presumed that Mr. Champney gives the greatest prominence to the landscape, and the composition criticized from this standpoint, the illy introduced figures must be condemned.

Just as Mr. Champney has been heard to prove by actual illustration before an audience how a slight elimination of a foreground, the cutting off of unnecessary height of background, or the blotting out of inartistic detail would make a perfect picture of an otherwise poor one, so let any one eliminate the figures in the North Parish picture, and judge the better result.

If the figures *had* to be introduced for the sake of photographing them—and surely they could have been better portrayed under proper conditions—why not have posed them with some regard to the general composition and picturesque result? Surely this was within the artist's range.

After all that Robinson and so many eloquent and artistic men have shown and written on this very point, Mr. Champney's picture is a distinct retrogression, and very much in evidence against himself, to whom the student should look for example as well as precept.

Now let him give us this same subject photographed when the sun will properly illumine the scene for its best results in the artistic contrast of the lights and darks, and remove the uninteresting and flat heaviness of the present picture; dispense with the figures altogether or introduce them with some relation to the general composition—a cow on its way over the bridge with the usual village-boy tender stopping to look over the tree-trunk that guards the approach to the bridge into the stream below—and then will Mr. Champney do himself justice and add to the pleasure and profit of your readers.

H. Edwards-Ficken.

* Mr. Pringle has written a number of books on photographic subjects: "Practical Photo-Micrography," "The Optical Lantern," "Lantern-Slides by Photographic Methods," and (in connection with Prof. W. K. Burton) "The Processes of Pure Photography." All are published by The Scovill & Adams Company.

THE CHEMISTRY OF PHOTOGRAPHY.

(*Continued from page* 216.)

CHAPTER IX.

Chemistry of Alkaline Development

(*Continued*).

Alkaline Development Acts Internally.—We have seen that in the "acid" development of wet collodion plates, etc., the silver iodide in the film merely served as a foundation on which to form the latent image. That image was subsequently strengthened, built-up, or "developed" by depositing silver upon it from a developing solution (containing nitrate of silver, plus a reducer, plus an acid) which was poured upon its surface. The deposit of silver forming the picture thus *grows upwards* from the surface of the plate, and is composed of matter which the sensitive surface did not originally contain.

In alkaline development exactly the opposite takes place. The image grows *downwards*, and is fed and added to by silver *already contained in the film.*

Our gelatine dry-plates and films are coated with gelatine containing bromide of silver (= gelatino-bromide of silver emulsion). Light forms a "latent image" on the surface, which image consists—for chemical purposes we may say—practically of silver sub-bromide, Ag_2Br.

The alkaline developer with which the plate is bathed separates these two elements, combining with the bromine and liberating the silver :

Ag_2Br	=	Ag_2	+	Br
Silver Sub-bromide	*produces*	Silver	*and*	Bromine.

Now when an element is set free—as the silver is in this case—atom by atom, it is—chemically—a peculiarly active condition (known to chemists as the "nascent" state).

This nascent silver immediately attacks the molecules of silver bromide which form a layer *underneath* the layer of silver sub-bromide which composes the latent image. It combines with this silver bromide, reducing it to the state of sub-bromide :

AgBr	+	Ag	=	Ag_2Br
Silver Bromide	*and*	Nascent Silver	*produce*	Silver Sub-bromide.

The layer of sub-bromide so formed is in its turn attacked by the developer, and nascent silver is again liberated. And so the action goes on until it passes downwards right through the thickness of the film and reaches the glass or celluloid at the back. The developed image can then be seen by looking at the *back* of the plate ; and it consists of dark-colored reduced silver.

The coating of gelatine emulsion may be put on the plate so heavily that it is quite quarter of an inch thick when swollen by soaking, and it may be so highly charged with silver bromide as to be quite opaque. Notwithstanding this, it will be found easy to develop an image right through to the glass support or backing. In this case the silver molecules at the back could not have been affected by *light*, and their conversion to metallic silver can only be explained by the downward growth of the image, due to the chemical action of the developer.

From the same cause the image also spreads *laterally* or sideways. Microscopic examination of a film proves this clearly; and in photomicrography it is sufficient to interfere with the absolute sharpness which is desirable.

Abney's Experiment.—A remarkable experiment, due to Captain Abney, is to expose a gelatine dry-plate in a camera (so producing a latent image), and then to coat one-half of it with collodio-bromide emulsion (bromide of silver emulsified in collodion). The plate is then developed as usual, when it is found that the image on the coated half becomes much more dense than that on the uncoated part. If the film of collodio-bromide be then stripped away from the gelatine beneath, it will be found *that there is an image on each.* The image has *grown upwards* through the collodio-bromide (which was not exposed to light at all), as well as downwards through the gelatine emulsion. Starting from the surface of the gelatine film, the image has been fed with silver both from above and from below.

This strongly reminds us of the electrolytic deposition of metals, as in electro-plating; and the attraction by which each atom of deposited silver draws to itself other atoms of the same metal is beyond question of a "polar" nature, and almost certainly electrical.

Relation of Development to Rapidity.—The rapidity of our modern gelatine dry-plates is not altogether due to the superior sensitiveness to light of the emulsion of gelatino-bromide of silver with which the plates are coated ; it is also in no small part owing to the fact that we are able with such plates to use a much more powerful developer. In the old wet collodion, etc., processes the plate was covered during development with a solution of silver nitrate. Now if an alkaline developer be applied to a plate upon or in the film of which there is free silver nitrate, a deposit of metallic silver is produced all over the plate, which is then said to

be "fogged." In such processes an *acid* developer was necessarily employed; but acid developers are not nearly so powerful as alkaline developers. Again, in our modern dry-plates the particles of silver bromide are individually embedded in gelatine, and this gelatine acts as a physical restrainer. developer to be slow and steady. This gives time for other forces, as electricity, to play their part.

Owing to the numerous developers now employed, and to the fact of a somewhat general similarity of appearance between them (especially when made up as solutions), it is often useful to know how to distinguish them from one another. The following table* affords the means of doing this.

REACTIONS OF VARIOUS DEVELOPERS.

	Hydroquinone. (Dr. Byck's Yellowish Cryst.)	Pyrogallol. (White Sublimate.)	Pyrocatechin. (Grayish.)	Hydroquinone. (White Needles.)	Eikonogen. (Yellowish Crystal.)	Resorcine. (Sublimed.)	Hydroxylamine Hydrochlorate. (White Cryst.)
Taste.	Sweet, slightly bitter.	Slightly bitter..	Bitter.....	Sweet, slightly bitter.	Saline	Sweet.....	Acid.
Solution...	Colorless.....	Colorless becoming brown	Colorless, becoming greenish.	Colorless, becoming slightly brownish.	Colorless, rapidly turning dark-brown.	Colorless....	Colorless.
Reaction...	Neutral.....	Acid.....	Acid	Neutral.....	Neutral.....	Neutral.....	Very acid.
Action of Heat.	Fusible and volatile.	Fusible and volatile.	Fusible and volatile, 240 deg. C.	Fusible and volatile.	Fixed residue, carbonizes and becomes incandescent, leaving a white saline residue.	Fusible and volatile.	Fusible and volatile.
Solution of Ferrous Sulphate.	Nil..... ...	Blue coloration.	Nil turns green after long standing	Nil.....	Violet coloration..	Nil.....	Nil.
Solution of Ferric Chloride.	Nil.....	Dark-brown coloration becoming violet with excess of sodium carb.	Emerald green, becoming violet with little sod. carb. and red with excess.	Nil.....	Yellowish-green, becoming rapidly yellowish-brown, and then dirty brown with sod. carb.	Violet blue.	Nil. decolorizing the ferric chloride.
Tincture of Iodine.	Decolorizes the tincture.	Red-brown coloration.	Nil..... .	Decolorization.	Reddish-brown coloration.	Instantaneous decolorization.	Decolorization.
Solution of Plumbic Acetate.	Nil.....	White precipitate.	White precipitate.	Nil.....	White precipitate, turning black.	Nil.....	At first nothing; then a precipitate forms.
Solution of Potassium Carb.	Yellowish coloration, turning brown in air.	Yellow, turning blackish-brown.	Yellow becoming brown.	Yellow, turning brown rapidly.	Yellow, turning brown rapidly on shaking.	Nil.....	Nil.
Solution of Silver Nitrate.	After a time a gray precipitate, solution colorless.	Slow reduction to metal, solution brown.	Very slow reduction, solution yellowish.	Slow reduction.	Instantaneous reduction.	Nil.....	White precipitate.
Dilute Hydrochloric Acid.	Nil	Nil.....	Violet coloration.	Nil.....	Rose coloration in diluted solution, becoming greenish on addition of ammonia.	Nil.....	Nil.

THESE REACTIONS TAKE PLACE IN A ½ % SOLUTION OF DEVELOPING AGENT.

A developer which is so strong as to be able to reduce silver bromide when applied to that substance separately, cannot affect it when the silver salt is emulsified in gelatine. The gelatine wraps round and encloses each tiny particle of the silver bromide, and causes the chemical action of any

W. Jerome Harrison.

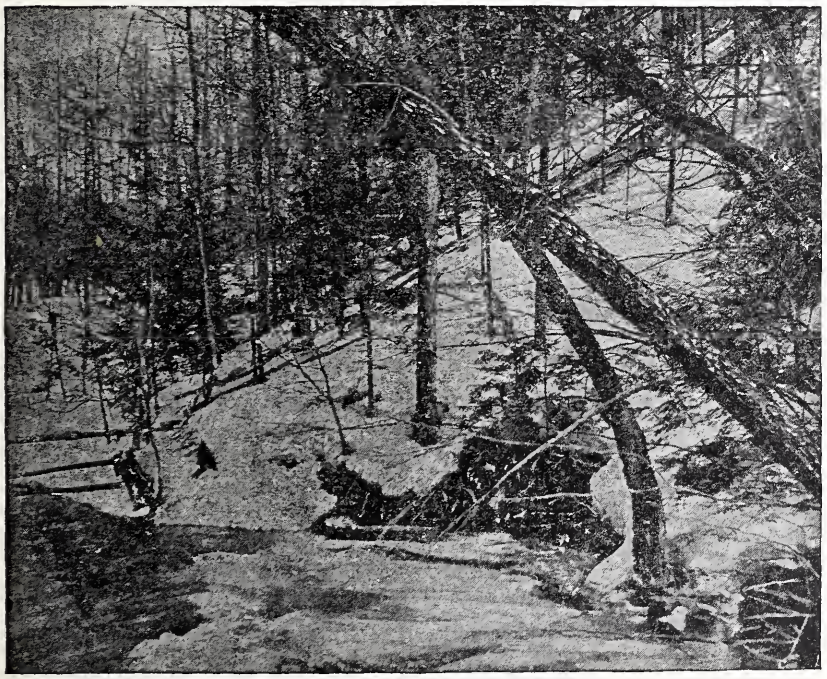
(*Concluded.*)

* By L. Van Neck, in the *Bulletin Belge*, 1890.

PHOTOGRAPHY AND ILLUSTRATION.

The following interesting article and the cuts from photographs which illustrate it, are reprinted from *The Engraver and Printer* of February, by special permission of its publishers:

Of the leading features in the various lines of publishing and printing, illustration has become one of the most important. This prominence is largely due to the increased facilities afforded by the various methods of photo-mechanical reproduction. The newer methods of reproduction being themselves based on photography have brought general photography into intimate relations with illustration. Not only is the work of painters faithfully reproduced by photo-mechanical engraving, but in all lines of illustrated work direct reproductions from photographs and general views form an important feature. The possibilities of direct reproduction by photo-mechanical methods has widely extended the range of illustration. Professional photography is universal in its scope, while the excellency of manufactures of photographic outfits and the active interest taken by amateurs secures the successful preservation of almost every event and scene. The wide possibilities of engraving processes and the range of reproduction is equally extended. In place of imperfect sketches, or work which may be affected by the personality of the artist, many descriptive works of the present time are illustrated with direct reproductions secured by photography, accurately reproduced by photo-mechanical methods. In many of the works of prominent publishing houses the illustrations are direct reproductions from photographs. There are a great variety of uses which are made of photographs for direct reproduction, but the various methods often require special conditions in the original work.



WINTER SCENE.
From a photograph by J. J. Morrill, Fulton, N. Y.
(By permission of "The Engraver and Printer.")

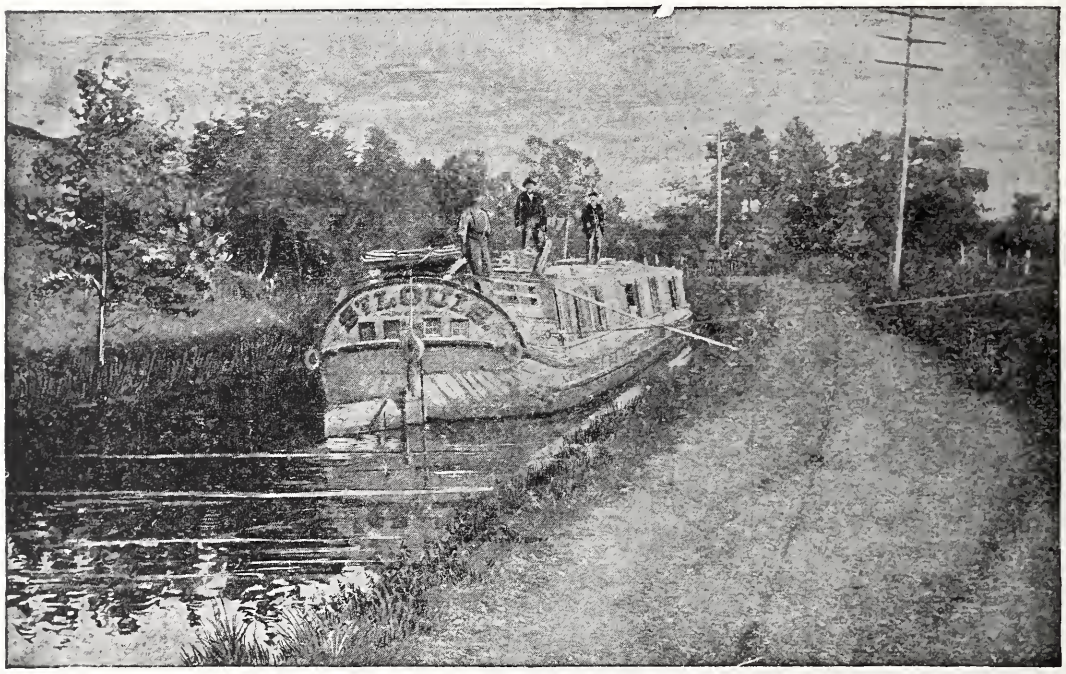
Town Views.

One of the most interesting and popular classes of work which is made possible by the newer methods of direct reproduction is the publication of town views and illustrated souvenirs. Such works could not be produced in small editions on wood without great expense. These views can now be reproduced in what is commonly known as "gelatine prints" at a moderate cost. Supposing one were to undertake to publish a collection of twenty town views in an edition of a thousand copies. After having secured the photographs, if these were to be produced on wood, it would be a matter of considerable time and great expense; also the element of absolute accuracy would be lost. The present procedure, however, in this popular class of work is very expeditious. If these views are to be produced in gelatine prints, as mentioned above, the photographer uses a special dry-plate known as a "stripper." So far as the photographer himself is concerned, these plates are subject to the same treatment as ordinary dry-plates. The photograph must be made the same size as is desired for the reproduction. The gelatine printer uses these negatives in obtaining the gelatine plate from which to print. The plates which are made from these negatives are perishable, and the requirements of printing are such that the plates can be used only by gelatine printers, and not in the general printing office, as in the case of half-tone and relief plates. This process of reproduction is the most desirable for editions of a few hundred and even of several thousands; but the cost varies so little, proportionately as the number of prints increase, that it is hardly available for large editions. The prints by this process are very beautiful, retaining all the detail of the original; and not only town views, but college work and many

institutions are most successfully illustrated in this process.

Portrait and Group Work.

Gelatine printing is also used successfully for the reproduction of portrait and group views, where small editions are used in biographical works. In such cases an ordinary silver print is generally furnished to the gelatine printer, and he has to make a special negative from the print. A large use of direct reproduction from photographs of group work may be seen in the college annuals which are published so generally throughout the country. Photographs for this work are usually suplied to the printer by the local photographers, and are easily reproduced by the printer. Although these plates are not subject to general use, as stated previously, yet the negatives are always preserved, and future editions can be secured at any time.



ON THE MIAMI CANAL, DAYTON, OHIO.
From photograph by Elizabeth B. Edgar, Dayton, Ohio. (By permission of "The Engraver and Printer.")

Photography in Book Illustration.

In many of last season's holiday books of travel or descriptive works, half-tone reproductions were made direct from photographs. "The Fall of Pompeii," published by Estes & Lauriat, Boston, was one of the most notable works in this class. The book was illustrated with recent photographs, showing the city in its restored condition. Nearly all books of travel and research are now illustrated by direct reproductions from photographs. For these illustrations ordinary photographs are used. No particular size is required, as the photographs can generally be reduced to the desired size.

General Illustrations.

Naturally the most prominent use of direct reproductions from photographs is found in the popular illustrated magazines. As the mechanical excellence of the methods of reproduction has advanced, half-tone engravings have been adopted in all lines of illustrated publications. Many of the most interesting articles to be seen in the magazines are illustrated by this process. Notable instances of its use are seen in the illustrations of Japanese life, which has recently been so prominent a feature in the magazines. Also, in the *Cosmopolitan* photography has had an important part in the illustration of American industries and various articles of travel.



"FORBIDDEN FRUIT."
From photograph by H. E. Johns, Oil City, Pa.
(By permission of "The Engraver and Printer."

The advertising propensities of promient railroads are also seen in many very beautiful and artistic brochures of scenery and industries along their lines. These views are reproduced direct from photographs by half-tone engravings, as the editions are so large as to preclude the use of gelatine reproduction. Many extensive works have also been used by land companies in which half-tone engravings direct from photographs were shown as evidence of the actual condition of the property represented, and as circumstantial evidence that the land was not "all under water."

In almost all periodicals, illustration has come to be regarded as one of the essentials for securing and holding general interest. Photography is the principal element not only in the illustration of general descriptive articles and articles of travel, but nearly every line of manufactures and various scientific matters are also illustrated with direct reproductions from photographs. In view of the large market among the illustrated publications, and also among the various engraving companies of the country, plates of general interest are always in demand. The attention of photographers is called to the announcement found in our advertising pages regarding the purchase of photographs. The question of the technical excellence of the subject is not so much to be considered as is its attractiveness.



"GETTING READY FOR THANKSGIVING."

From photograph by C. P. Webster, Boston, Mass. (By permission of "The Engraver and Printer.")

Prize Photographs.

With a view of stimulating the interest in photography for illustration, prizes were offered in a previous issue of *The Engraver and Printer*. The photographs printed in connection with this article were selected to show the facilities for illustration by reproduction from photographs. These plates are reproduced by half-tone engravings direct from the photographs.

The various methods of reproduction are in such an advanced state and are so efficiently handled by the printers that the range of illustration is nearly equal to that of photography.

"My fingers used to get very sore from picking the Ferro Plates from the Cyanide. I now use a pair of five-cent Pliers and am not troubled with sore fingers."—H. A. Edwards.

Notes and News.

An Unusual Activity is manifesting itself in amateur photographic circles this Spring. The societies are all bestirring themselves.

J. H. Scotford, of Tacoma, Washington, has removed to Portland, Ore., where he will conduct his photographic gallery in the future.

We hear that the International Annual of Photography will not be issued this Summer.

W. N. Jennings, delivered his illustrated lecture on the "Yosemite Valley," and "Street Scenes in China-town," at the new Century Drawing Room, Friday evening, April 22d, in aid of a furnishing fund for a room in the Medico-Chirurgical Hospital.

L. T. Sparhawk, photographer and photographic dealer, of West Randolph, Vt., offers a complete set of THE PHOTOGRAPHIC TIMES, from Volume I. to Volume XXI., excepting Volume XI. Those in search of a set will do well to correspond with Mr. Sparhawk.

Awarded a Silver Medal.—The Amateur Photographic Club of Vienna, at a meeting held February 27th, awarded Prof. Charles Ehrmann, Associate Editor of THE PHOTOGRAPHIC TIMES, and Instructor of the Chautauqua School of Photography, a silver medal of Daguerre for his faithful services to photography, especially in the Chautauqua School.

William H. Metcalf, an esteemed contributor to THE PHOTOGRAPHIC TIMES, and "American Annual of Photography," died Sunday, April 8th, at his residence in Milwaukee, Wis., after a long illness.

Mr. Metcalf was one of the oldest merchants of Milwaukee, and was distinguished, not only as a successful merchant, but a collector of one of the finest small galleries of pictures in the country. He was an enthusiastic amateur photographer.

OBTAINING A NEGATIVE ON PAPER FROM A NEGATIVE ON A GLASS PLATE.

A PHENOMENON OF PSEUDO REVERSAL.

A SHEET of paper coated with a collodio-silver chloride emulsion is placed in contact with a negative and exposed to the luminous action in a room dimly lighted. After a week's exposure a positive image is formed and although a little over-printed no trace of a negative impression can be detected, but at the end of another week the reversal commences to manifest itself. The parts corresponding to the high lights of the image and which consequently were white on the positive are tinted, while the deep shadow instead of still darkening have acquired a lighted tint, which already indicates what will be the final result of the operation. In fact, at the end of the third week of exposure everything is reversed; the contrasts are attenuated, the parts which ought to be clear have blackened, while the blacks have acquired a strange luminosity which plainly show the transformation from the positive to the negative. The reversal is complete, but the contrasts are dull, and only visible by reflected light; hence this reversal is a phenomenon of reflection and it is not difficult to explain it.

We know that in state of extreme division the metals do not reflect light. Silver, for example, precipitated from an organic solution to metallic state is a black grey powder without éclat. But if by any means we compress the particles of the powder so as to bring them near each other into strong optical contact, the whole will take the metallic éclat. The experiments can easily be done: a chamois-leather upon which adheres a layer of argentic powder is rubbed on a hard surface; at once the rubbed part appears metallic and brilliant. Instead of rubbing the powder, it may be heated until it enters into fusion. The metallic éclat appears at this moment. In both cases it is the bringing nearer of the silver particles, *i. e.*, the cohesion which has determinated the metallic éclat. Separated from each other, these particles do not reflect light and seem black, closely united, they glitter.

It is the same phenomenon which is produced on the paper sensitized with silver chloride. Exposed to a proper light under a negative, this paper blackens progressively from the formation of amorphus argentic particles which have no reflexion. If the exposure is carried on, the particles of silver increase, come near each other, and finish by acquiring such a cohesion that the metallic reflexion commences. At this moment the parts of the proof which should have remained white after a rational exposure, being the opaque parts of the negative, become tinted at their turn to become dark. Hence that which should have remained black becomes brilliant, and that ought to have have remained white becomes black. The negative is then formed. But it is clear that the negative is only visible by reflection. Seen by transmitted light, it is a positive over-printed.

Two points remain to be explained. Why is this curious phenomenon better produced by a very diffused light than by a powerful one? why does the obtained negative image become positive after fixing?

By an intense light the contrasts are less strong on the proof than by a diffused light; the whites become tinted before the blacks become brilliant, and it results that the proof is solarized (as it is said) without presenting the negative character. On the contrary by a very diffused light, the whites remain not tinted for a long time, when only the blacks darken and become more and more charged with silver molecules. As to the restoration of the positive image after fixing it explains itself. If a certain quantity of silver particle which, in last analysis, produces the negative, in giving to the blacks a metallic reflex and, also, by obscuring. If we remove this cover of argentic particles, by means of a solvent, in the same time we bring back the blacks to the mat appearance and we lighten the whites, the positive then appears again.

Such is the account the editor of the *Revue Photographie*, Dr. L. Demole, gives of the interesting experiment he has devised.

* This well-known observation explains why weak negatives should be printed by a light so much more diffused as the intensity of the cliché is the weaker.—C. D.

Photographic Societies.

ALLENTOWN AMATEUR PHOTOGRAPHIC SOCIETY.

A CAMERA CLUB has been organized called the Allentown Amateur Photographic Society, with Mr. Charles Rockel, President; Arnold R. Lewis, Vice-President; S. U. Mitman, Secretary and Treasurer, and the following persons: Geo. B. Otis, L. J. H. Grossart, J. G. Eberline. Edw. Wannamaker. The membership has been limited to twelve persons, and only such who intend to make it a study and who want to advance in the art can belong to it. Any member proposed must hand to a (committee on prints) not less than three samples of his own work, to show whether he is a careful manipulator, and a lover of the art. Every member of the society must every month hand the Committee on Prints not less than one unmounted print. which committee will then examine same, and if good work and composition are shown, the prints are accepted and mounted, a full account of same to be kept in a book made for the purpose. We have limited the membership so that we can work together as one man, and not be hindered in our work by an overdose of business transactions, etc. We are also proud to state that Mr. Geo. B. Otis, who has gained quite a reputation as a lantern slide maker, and Mr. L. J. H. Grossart, formerly instructor in photography at Lehigh University, South Bethlehem, Pa., and S. U. Mitman, whose bromide enlargements are remarkable for their perfection, are very much interested in the advancement of the society, and with the experience of such men and the willingness to work on the part of the others, we expect to rank among one of the best of amateur societies, if the work and pictures we expect to turn out will have anything to do with it.

Arnold R. Lewis,
Vice-President,

THE PHOTOGRAPHIC SOCIETY OF PHILADELPHIA.

THE annual meeting of the Society was held Wednesday evening, April 13th, the President, Mr. John G. Bullock, in the chair.

In accordance with the resolution passed at the last stated meeting, the appointment of the following Special Committee on Standards was announced: Prof. Benjamin Sharp, George W. Hewitt, Theodore H. Luders, Lewis T. Young, and William H. Walmsley.

The monthly report of the Board of Directors announced the death of four active members since the last meeting, as follows: Messrs. Thomas Hockley, Louis Reichner, Jr., William L. Springs, and William A. Cheyney.

The following persons have been elected to active membership: George W. Norris, James Douglas Blackwood, M. Grahame Hallock, and Allen G. Miller.

At the conversational meeting, March 23d, American Interchange Lantern-Slides from Chicago and St. Louis were shown.

The annual report of the Board of Directors was read by the Secretary, and was a notable record of the prosperity and usefulness of the Society. The principal events in the history of the Society were recited, among which may be mentioned the following:

April 8, 1891. *Discussion:* "New Developing Agents." *Paper:* "A Suggestion for a Possible Method of Identifying the Colors Photographed," by J. F. Sachse.

May 13, 1891. *Demonstration:* Toning of Omego Paper," by C. E. Hopkins (a visitor).

June 10, 1891. *Paper:* "On the Preliminary, Secondary and Supplemental Lighting of the Photographic Plate," by J. F. Sachse.

October 21, 2891. *New Room*, at 10 South Eighteenth Street, first occupied for meeting.

October 28, 1891. *Illustrated Lecture:* "Photography in the Arctic Regions," by Prof. Benj. Sharp.

November 11, 1891. *Paper:* "Preparing Strong Ferrous Oxalate," by Caspar W. Miller. *Competitive Exhibition* of Hand Camera Lantern Slides.

January 13, 1892. *Discussion:* The Permanence of the Undeveloped Image on Dry-Plates.

January 21, 1892. *Competitive Exhibition* for Honor Pictures.

February 3, 1892. *Illustrated Lecture:* "Switzerland—The High Alps," by C. L. Mitchell, M.D.

February 10, 1892. *Paper:* "The Fading of Silver Prints," by Ellerslie Wallace, M.D.

February 23, 1892. *Public Exhibition* of Lantern Slides; the work of members.

March 9, 1892. *Paper:* "Photographic Objectives," by W. A. Cheyney. *Discussion:* Recent Appliances for the Optical Lantern.

March 15, 1892. *Illustrated Lecture:* "Picturesque Norway," by C. L. Mitchell, M.D.

April 5, 1892. *Illustrated Lecture:* "From Philadelphia to the Grand Cañon of the Yellowstone," by Frederick E. Ives and William N. Jennings, with natural color photographic projections.

During the year six members had been lost by death; 34 new members were elected; the total number now on the roll being 200, or about the same as at the date of the last report. In view of the fact that the annual dues had recently been doubled, this fact had been considered very gratifying.

The increased interest and usefulness of the stated meetings was shown in the fact that the average attendance had increased twenty-five per cent. over that of last year.

The Special Committee on Entertainments reported that the three public entertainments in aid of the Home Fund were very successful, resulting in a net profit of $525,61.

Action on the amendment to the By-Laws proposed at the last stated meeting, to increase the initiation fee of active members to ten dollars instead of five, resulted in the defeat of the resolution.

The election for officers and Directors for 1892–93 resulted as follows:

President, Joseph H. Burroughs; Vice-Presidents, Edmund Stirling, Charles R. Pancoast; Secretary, Robert S. Redfield; Treasurer, George Vaux, Jr.; Directors, John C. Browne, Charles L. Mitchell, M.D., John G. Bullock, William H. Rau, Frederic E. Ives, Samuel Sartain, George M. Taylor, John Carbutt.

An illustrated lecture was given by Dr. Benjamin Sharp, his subject being "A Trip Trough the West Indies," which

was followed by a demonstration of the process of making lantern-slides with gelatine dry-plates. Adjourned.

Robert S. Redfield,
Secretary.

The Editorial Table.

Mr. Wm. Sherman, of San José, Costa Rica, has sent us a large collection of 6½ x 8½ and 5 x 7 photographs, highly interesting scenes of Central America. Especially fine are those views of mountain glens, with cascades of water rushing over precipitous rocks. There are distant mountain ranges, with artistically selected foregrounds, native huts, and a variety of other things highly laudable to the diligent operator.

These pictures were made upon Carbutt Eclipse plates, with the Morrison wide-angle lens.

Pictures printed on ready-sensitive albumen paper, and toned with a very rich tone, and fixed in one operation have been sent to us with the statement that they were permanent, and that "any way if they should fade, what difference does it make whether they are toned by one or another process since the pictures toned with gold and fixed afterwards will also fade?"

In answer to this (here a substantive with an adjective we cannot find) we will simply observe that fading being the consequence of the slow sulphuration the proofs undergo by time, those which are already sulphuretted in the toning-fixing bath will necessarily fade much more rapidly than those which are not, and, besides, are protected, not sufficiently, it is true, but for a long period by a layer of gold.

Record of Photographic Patents.

472,702. Photographic Plate-Changing Apparatus. Friedrich A. Fichtner, Dresden, Germany.

472,812. Art of Making Portraits or other Pictures. Francisco Piera y de Mata. Havana, Cuba.

472,883. Photographic Shutter. Frank R. Hoyt, Watkins, N. Y.

473,188. Photographic Shutter. George F. Green, Kalamazoo, Mich.

473,356. Photographic Shutter. Ferdinand Serous, Berlin, Germany.

473,357. Support for Camera or other purposes. Ferdinand Serous, Berlin, Germany.

473,358. Photographic Camera. Ferdinand Serous, Berlin, Germany.

473,359. Plate-holder. Ferdinand Serous, Berlin, Germany.

473,375. Coin-operated Photographic Apparatus. Wilhelm A. C. Bernitt, Hamburg, Germany.

Why is a man who carries a hand camera, like a mad dog?

Answer.—Because he snaps at everything. *W. C. C.*

Queries and Answers.

244 INQUIRER.—What is thiosulphate, so often mentioned of late in THE PHOTOGRAPHIC TIMES? A fixing agent, no doubt, but how does it compare with the old hyposulphite of sodium?

244 *Answer.*—Thiosulphate is synonymous with hyposulphite, but is termed so by a more recently adopted chemical nomenclature, according to which the oxy-acids of sulphur are named respectively:

Hyposulphurous	acid	H_2SO_2
Sulphurous	"	H_2SO_3
Sulphuric	"	H_2SO_4
Thiosulphuric	"	$H_2S_2O_3$
Dithionic	"	$H_2S_2O_6$
Trithionic	"	$H_2S_3O_6$
Tetrathionic	"	$H_2S_4O_6$
Pentathionic	"	$H_2S_5O_6$

the higher oxidations of sulphur deriving their names partly from the Greek cardinal numbers and partly from the word Theion, Sulphur, of the same language.

245 MRS. H. B. T. wants to make pictures of her parlors, sitting rooms, etc., in fact of every room in the house. She uses the 4 x 5 Waterbury hand camera and Carbutt orthochromatic plates No. 27. A number of exposures made proved failures, in some cases no sign of a picture being visible after prolonged attempts to develop.

245 *Answer.*—Pictures of your rooms must be made by timed exposure. Use the smallest stop, and expose in the upper stories, where the light is but little obstructed by surrounding buildings for from one to two *minutes*, not seconds, and increase the time as you descend toward the basement. But why not dispense with daylight altogether and substitute magnesium light instead. A Scovill No. 3 flash-light cartridge will furnish light enough to photograph all the rooms at night, when stop and plates are the same as aforestated.

246 A. P. A.—I have purchased a bottle of Rodinal, tried it with Carbutt Eclipse and lantern-slide plates, with Stanley, and with Harvard, but in all instances did I fail to develop up to printing intensity, and every one of the plates fogged enormously. Am I wrong or is the developer?

246 *Answer.*—Para-amidophenol is a most excellent developer, and surpasses in many respects all its competitors. One of its compounds, has, to all reports received, not been able to stand a crucial test. The observations made by you have been made by many other practical operators. But be not discouraged from using para-amidophenol. The preparation made by the Scovill & Adams Co., and the formula for which is published with every issue of this journal, will justify the reputation of the substance; its action will astonish you.

247 T. R.—Will you give me a good and reliable formula for eikonogen developer in one solution?

247 *Answer.*—See No. 47 Standard Formula, page 263, "American Annual of Photography," for 1892.

CHAUTAUQUA SUPPLEMENT

TO THE

Photographic Times.

CONDUCTED BY PROFESSOR CHARLES EHRMANN.

APRIL, 1892.

NOTICES TO STUDENTS.

THE practising class of Chautauqua School of Photography will open on the Assembly Grounds on or before July 1st, at the old headquarters, corner of Pratt and Centre Avenues, in the rear of the post-office building, and will remain in session till the first week in September.

Subjects of instruction: The modern gelatine emulsion processes in all their bearings. Special attention will be paid to orthochromatic work, with and without ray-filter, to enlargements and reductions, mainly so to the making of lantern slides on dry plates.

Printing methods: Chloride of silver gelatine and collodion paper, albumen, mat-surface silver, cyanotype, bromide plain and toned, and kallitype printing.

Daily practice in studio, laboratory and field, and theoretical instruction on various topics.

Retouching the negative and finishing the print by means of color and brush will not be taught.

One course of 10 lessons, $5.00.

One half course of 5 lessons, $3 00.

Special instruction per hour, $1.00, independent of material and text-book.

Advanced students will please bring with them camera, lens, plate-holders and tripod. The rest of utensils is furnished by the school without charge. Beginners will work with apparatus belonging to the school.

All students intending to join the practising class would do well to secure a class number before the Assembly Grounds are open. Address the instructor without delay.

Advanced students of the East coming by the Erie railroad should make arrangements to lay over a day at Port Jervis or Susquehanna station. There is an abundance of splendid camera food in that part of the country.

We request again all members and ex-members of the school to assist in making the 1892 Chautauqua Exhibition better than any of previous years. If all will coöperate we may be able to show the good people of Chautauqua that our little institution is progressing in every direction.

Many lantern-slides have been promised, a few have come in, and there is every reason to suppose the school may be able this year to hold independent exhibitions publicly.

The following students having returned their examination papers answered are rated as follows:

No. 631.—	Competing for	first diploma..	100	p. c.
529.—	"	" "	..100	p. c.
525.—	"	for blue seal.....	89½	p. c.
519 —	"	for first diploma..	97	p. c.
511.—	"	" " ..	97½	p. c.
490.—	"	for blue seal..	100	p. c. *Cum laude.*
439.—	"	" " ..	99	p. c.
399.—	"	for first diploma..	82½	p. c.
348.—	"	" " ..	79½	p. c.
250.—	"	for blue seal.....	96	p. c.

To make it pleasant to all candidates, those especially whose time is very limited, we extend the time of returning examination papers to July 1st, when they should be addressed to the Assembly Grounds. But we wish it to be perfectly well understood that no diploma will be awarded unless the respective student has remitted the required three finished prints.

THE EXCHANGE CLUB.

It is confidently expected the May exchanges will be promptly delivered to the Secretary by the 15th of the month. No Chautauqua Supplement to THE PHOTOGRAPHIC TIMES is issued during June, July and August, and if the members of the Club desire to see their work criticised before next autumn, they should not fail to come up to the time prescribed by the rules of the Club.

QUERIES ANSWERED.

No. 569.—(1) Would you please give me a good quick formula for toning Omega paper?

(2) What is the reason that in toning Omega paper spots appear on prints as on photo inclosed, and please give a remedy?

(3) Would you please give me a good eikonogen developing formula in one solution?

(4) What will remove the blue stain left on negatives after reducing?

(5) I opened a box of plates by mistake in lamp light but only took off the cover and replaced it instantly, would the second plate from the top be fogged, the plates being light-struck.

Answer.—(1) A good formula for a slow bath you will find on page 89, "American Annual of Photography" for 1892. If you want it to work quicker add to each 16 ounces of the stock solution 20 grains of nitrate of lead. But we do not advise to do so.

(2) When the picture is toned sufficiently, that is, when it appears black by transmitted light, remove it at once to running, not stagnant, water. The toning bath having permeated the soft gelatine film, will continue to act till by quick and forcible action of pure water, it is entirely removed. For that reason we should not leave the print in the combined bath till it has attained the color wanted.

(3) See the Chautauqua eikonogen developer in one solution, standard formula No. 47, page 263, "American Annual of Photography" for 1892. It will answer all your requirements.

(4) Let us first examine whence the blue stains may occur. We believe you are printing extensively on bromide paper, develop with ferrous oxalate, and fix in the same acid hypo bath used for negative fixing. Were but a trace of iron present when an over-developed negative fixed in such a bath is to be reduced in density by Farmer's solution with ferricyanide of potassium, the bluing of the print would be a natural consequence. You can remove the blue color by washing with dilute solution of carbonate of potassium. There is no danger of bluing a print with Bellitski's reducer. See standard formula 64, page 265 of "The Annual."

(5) If the second plate is light struck, probably the third will not be.

No. 568.—I have been using Carbutt's orthochromatic plates and have had fairly good success with them. Sometimes after development I find my plates stained pink, but more often a light blue. This occurs even when I use alum for clearing the plates.

Answer.—Color-sensitizers used for the preparing of orthochromatic plates, dyes of the eosine group, like erythrosine and eosine proper will give the emulsion a pinkish color. The color remaining on the finished negative is not at all injurious, but were you to object to it for reasons of your own, you can remove it by washing the plate with alcohol. We do not know what color-sensitizer Mr. Carbutt uses, but it may be possibly one that changes blue when in contact with alum.

No. 536.—(1) My Omega solution after being poured into the toning tray becomes milky. Is that a proof of its losing its toning power? (2) Would you advise me to use bromide or albumen instead of Omega for exchanges? I like the Omega so much better.

Answer.—(1) The turning milky of the bath is the natural consequence of its composition. In time the deposit formed will blacken without any additional harm to the pictures toned therein. Keep account of how many prints you tone in a certain quantity of bath. In ten ounces of it the limit is from 40 to 50 5 x 8 prints.

(2) We would like to see your print on three-crown ambumen paper sensitized by yourself. It gives you the most durable prints, there is no doubt. But till you are more experienced in the practice of printing you had better adhere to the Omega. At present drop bromide printing. You do not succeed well with it.

No. 580.—(1) Please will you tell me what my silver bath should register: silver nitrate, 50 grains; ammonia nitrate, 30 grains, and ammonia to make it alkaline, mine having been made up and used before it was registered? At present it is 80 hydrometer degrees.

(2) After I have silvered a sheet of paper and directly it comes from the bath, I put it between blotting paper, rub it down, and then hang up to dry. I do this because it used to dry uneven and stain in spots. Should I continue this practice, or what would be the better plan?

Answer.—(1) The 80 degrees indicated by the hydrometer are quite correct.

We are well aware of our lessons prescribing the adding of nitrate of ammonium to the bath, but nevertheless advise to use pure nitrate of silver only. Dissolve 1 ounce of it in 10 ounces of distilled water, and neutralize acidity with carbonate of sodium. Such a bath will register about 45 degrees of the hydrometer. The presence of ammonium nitrate is misleading, when testing a bath partly exhausted of silver.

(2) Perfectly correct. When the bath contains as much solid matter as yours, the solution will run from the sensitized sheet in little streaks, and dry finally in tears, as photographers term the phenomenon. You prevent this by blotting; a

silver bath of moderate concentration will not act in the manner described ; a sheet of paper hung up after removal from the silver solution will dry uniformly—a much easier and more economical method.

No. 165.—(1) How can I prepare sodium ferric oxalate? (2) Is it a soluble salt, and in what proportions of water does it dissolve? (3) How is oxalate of silver made, I mean the argentic salt, and is it soluble in water? (4) Is the argentic oxalate used for sensitizing kallitype paper, and can you give me a formula how to use it for that purpose?

Answer.—(1) You can prepare it analogous to the corresponding potassium salt, which has been repeatedly described in these columns. Make a desirable quantity of ferrous oxalate developer, but instead of neutral oxalate of potassium use neutral oxalate of sodium. Pour it in an open tray or pan and allow to evaporate spontaneously and in a dark-room, till the whole of it is reduced to a rusty brown and fragile mass. When dry mix with about five times its volume of distilled water, and add saturated solution of oxalic acid till nearly the whole of the residue has been dissolved. Then filter, evaporate to cristallization point, and set aside over night, when the beautifully green crystals of the desired salt will form. (2) It is soluble in water in the proportion of 1 : 3. (3) Oxalate of silver is not soluble, and is made by precipitating nitrate of silver with pure ferric oxalate. (4) It is used for kallitype printing, but the precipitate formed with ferric oxalate is very coarse-grained and flocculent, scarcely fit for printing purpose. If you float paper upon a solution of ammonium ferric oxalate, and finally sensitize with a 10 per cent. solution of nitrate of silver, a much finer deposit well adapted for printing purposes occurs. The paper is quite sensitive, and may be developed with Rochelle salt pure, or Rochelle salt and borax.

You know enough about kallitype printing to apply these hints profitably.

We wish you to report on your intended experiments.

No. 549 has prepared a large lot of cyanotype paper, kept it for several months in a closet of his dark-room, but finds to his surprise the paper has changed color, it is now of a greenish-blue, and not at all fit to print from. He wants to know:

(1) Can the paper be restored to its original color and sensitiveness?

(2) What is the direct cause of the changing of color?

(3) Is there a method of preparing blue paper to keep better with ordinary precautions?

Answer.—(1) It cannot. (2) The moisture of your dark-room. Blue paper should be wrapped up in waxed or parraffine paper, and be stored in an absolutely dry room. (3) If you will add 2 grains of bichromate of potassium, previously dissolved in a little water (the salt dissolves in the proportion of 1:9.5) to 2 ounces of the mixed solution, see lesson No. XI., and then coat the paper in the usual manner, we will guarantee it to keep well for five or six months, provided the paper itself is of desired quality

No. 518.—What developer do you consider the safest for orthochromatic plates? Almost invariably do these plates fog very much, no matter by whom they are manufactured.

Answer.—The fogging of your plates cannot possibly be ascribed to the action of the developer, but more so to an unsafe illumination of the dark-room.

The light of your Peerless lantern does perfectly well for usual work. The petroleum flame is shaded by copper-flashed glass, which does not allow any of the blue or violet rays to pass, while much of green and yellow predominates. Mr. Carbutt's orthochromatic plates which you are using are highly sensitive for these rays, and fog must naturally arise when one attempts to develop in such light. For color-sensitive plates of any description we advise to subdue the light of the Peerless lantern with at least two thicknesses of brown tissue paper, and then place the developing tray at a distance of from 4 to 5 feet. Were we to develop color-sensitive plates professionally, and many of them, we very likely would select ferrous oxalate ; its action is easily controlled, it gives clean and neat negatives, and its color alone is a safeguard against plate-fogging if the dark-room light is any way defective.

No. 582.—(1) Is there any way to restore the original lustre and brightness of a faded daguerreotype?

(2) Chapter XII. of "Processes of Pure Photography" speaks of American cloth. What does the author mean?

(3) What is the best brand of bromide paper for making enlargements?

Answer.—(1) Soak the plate for a few minutes in water, long enough to detach all adhesive paper by which the plate was fastened to the cover glass, grasp one corner of the plate with a pair of pincers,

and wash well in running water, and immerse in a solution of potassium cyanide in the proportion of 1 : 20, when all deposit and scum will gradually dissolve, leaving a bright lustrous surface, and the picture in as perfect condition as it had been on the day it was made, provided the plate has not been rubbed or scratched. Finally wash again and dry by slight heat. A heavily gilded daguerreotype will lose its picture deposit when excessively heated.

(2) Mr. Burton, one of the authors of the book, is an Englishman and tolerably well acquainted with American matters. By American cloth he means the rubber-coated fabric sold by Scovill & Adams under the name of focusing cloth. A square yard of it costs but 50c.

(3) Star bromide paper No. 2. Use fresh paper of an emulsion number above 60.

No. 610.—Why should a negative be left longer in the fixing bath than is required to dissolve all the bromide of silver?

Answer.—During the fixing process a double salt of hyposulphite of silver and hyposulphite of sodium is formed, which is soluble in an excess of hypo. This double salt being sensitive to light, resulting finally in sulphide of silver on very long exposure, would stain the negative irredeemably if not entirely dissolved and washed away. It is not necessarily a long-continued washing that makes a negative durable, proper fixing is equally important.

Pictures Received.

No. 338.—Two cabinet and two carte de visite portraits, made by the light of a single window. The cabinet, of lady and child, is well posed, lighted and developed; the others are far from being satisfactory. In a portrait, the details of the shadow parts must be well brought out. If you cannot get sufficient light upon the subject, why not reflect it with an improvised screen? See the lesson on portraiture.

No. 553.—A large collection of cabinet portraits, full lengths, three-quarters, and vignetted busts. Extremely fine and accurate work. The collection will be a prominent feature of our exhibition. We congratulate the student on the eminent success had.

No. 461.—A Cat. A blue print of a fine negative, another on Omega paper. The fair student's usual fine work.

No. 495.—Three bromide prints of 8 x 10 size, the subjects dynamo machines in motion, instantaneously taken with a Morrison Wide-Angle and with the light of a No. 3 Scovill Magnesium cartridge. These pictures have no artistic value, but technically they are indeed the best of this season. There is not one fault to be found.

The same lady operator sends also an 8 x 5, "The Flowers that Bloom in the Spring," and as the picture comes from the land of Dixey there is a very choice selection in the picture of which we may well be proud.

Reproductions testify to her skill in that branch of photography.

No. 321, who has been with us considerable time is not as successful as one could wish him to be. His pictures, some eight or ten, 4 x 5, are helplessly over-exposed. We advise him to return to first principles. Drop the Cramer Crown plate, resort to the Carbutt B, and recommend to work with the Chautauqua pyro soda developer.

No. 207.—A large collection of views of Harvard University, and several Kodaks. We cannot speak sufficiently in praise of these pictures. They are intended for the Chautauqua exhibition, and will take a place in its foremost ranks.

No. 604.—Two $6\frac{1}{2}$ x $8\frac{1}{2}$ landscapes, printed from excellent negatives on Omega paper. To give full justice to these handsome negatives the prints should be much darker, and toned considerably higher.

No. 511.—Four cabinet card portraits. Well done.

No. 600, has shown us a large collection of reproductions from Japanese pictures. They are very good.

No. 575.—An excellent interior of cabinet size. Several instantaneous pictures of horses and cattle on pasture are somewhat under-exposed. We advise the diligent student to try the S. P. C. Para-amidophenol developer.

No. 633.—Large collection of 4 x 5 taken in Japan, China and India. They were made with the Scovill Triad Camera upon Carbutt Orthochromatic Films, by timed and partly by instantaneous exposure. The fair young operator deserves much credit for having done so well. There are but very few inferior pictures in the lot.

The American Annual of Photography for 1893 is now in active preparation. Contributed articles from the advanced students of the school are solicited.

THE PHOTOGRAPHIC TIMES.

AN ILLUSTRATED WEEKLY JOURNAL DEVOTED TO THE ART, SCIENCE AND ADVANCEMENT OF PHOTOGRAPHY

Issued every Friday.

W I LINCOLN ADAMS, Editor.

SUBSCRIPTION RATES.

Weekly (illustrated) for one year $5 00
" " " six months 2 50
" " one month's trial 50

Single copy, 15 cents.

The Weekly PHOTOGRAPHIC TIMES and Semi-Monthly *Philadelphia Photographer* to one address for one year, $9.00.

On Foreign Subscriptions $1 00 is added to pay postage.

Remit by Express Money Order, Draft, P. O. Order, or Registered Letter.

Subscriptions to THE PHOTOGRAPHIC TIMES received by all dealers in photographic materials in this and foreign countries, also by the American News Co. and all its branches.

ADVERTISING RATES.

Size of advertising pages, 6¼x9¼ inches; outside size, 8½x11⅝ inches.

One page, each insertion $20 00
Half page, per insertion 10 00
Quarter page, per insertion 5 00
Eighth " " 2 50
Business Notices, not displayed, per line 20

Discount for term contracts.

Copy for advertisements must be received at office one week in advance of the day of publication. Advertisers receive a copy of the journal free, to certify the correctness of the insertion.

All literary contributions, correspondence, "Queries," etc., should be addressed to THE EDITOR; all advertising matter to the Publishers,

THE PHOTOGRAPHIC TIMES PUBLISHING ASSOCIATION,
423 Broome Street, New York.

TWENTY REASONS WHY YOU SHOULD ADVERTISE IN THE PHOTOGRAPHIC TIMES.

First.—Because it is acknowledged to be the leading organ of photography in America.

Second.—Because it has the largest circulation among the best class of readers.

Third.—Because a subscriber who will pay $5 for a periodical, has got money enough to buy goods advertised in it.

Fourth.—Because it is the only photographic weekly journal in the world which is illustrated every issue with a high-grade photographic picture.

Fifth.—Because its high-class illustrations and reading matter places it upon the reading table of all the leading libraries in the country, and the photographic organizations.

Sixth.—Because it is the best edited and best printed photographic magazine published anywhere in the world.

Seventh.—Because you reach a class of buyers in it, not obtained through any other medium.

Eighth.—Because it is not read and then thrown away, but is preserved and bound, on account of its beautiful illustrations and original information.

Ninth.—Because it contains every week more original information prepared especially for its columns than any other photographic magazine.

Tenth.—Because its circulation is not local or limited, as it extends throughout the entire United States, and goes to both professionals and amateurs.

Eleventh.—Because it circulates not only in this country, but also in Europe and on the Continent.

Twelfth.—Because its pages are double the ordinary quarto size.

Thirteenth.—Because its rates are lower than any photographic publication, considering the size of page and the extent of circulation.

Fourteenth.—Because your advertisement will receive the best of treatment on the part of the compositor, and will be advantageously placed in its pages.

Fifteenth.—Because all its advertisers are endorsed by the publishers as being worthy of patronage.

Sixteenth.—Because no advertisement in any way objectionable is admitted to its pages.

Seventeenth.—Because all the leading manufacturers of and dealers in photographic goods are represented in its advertising pages.

Eighteenth.—Because its advertisers receive more returns from ads. in it, than in any other photographic publication. (An unsolicited testimonial from a leading photographic dealer.)

Nineteenth.—Because it is not an experiment, having reached its 22d year.

Twentieth.—Because, in short, it will pay you to advertise in it.

Commercial Intelligence.

ALL THAT ARE LEFT.

The following circular was sent out by the publishers of "The American Annual of Photography," and below we give the replies which were received since last issue:

PHOTOGRAPHIC MERCHANTS: We take pleasure in advising you of our great success in selling "The Photographic Times Annual" for 1892. Though over 16,000 copies were printed, the entire edition has been exhausted. Orders, however, are continuing to come in, which we are now unable to fill and if you have any of the books remaining in stock, we shall take pleasure in advertising that fact in THE PHOTOGRAPHIC TIMES, free of charge, notifying those in search of the book where they may procure it.

Yours truly,
THE SCOVILL & ADAMS CO.
(Publication Department.)

New York, April 12, 1892.

C. H. PIERCE & CO., of Springfield, Ohio, report two copies in paper covers.

REIMERS & KATZ, of Milwaukee, Wis., state that they have six copies on hand.

C. H. COLBY & CO., Ocala, Fla., have two copies left.

A. G. SPAULDING & BRO., of Chicago, have about fifteen copies on hand.

S. T. BLESSING, of Dallas, Texas, have a few copies left in paper covers and cloth.

JOHN A. THURSTON, 50 Bromfield Street, Boston, Mass., reports a "few" left on hand.

LOEBER BROS., 111 Nassau Street, New York City, also report a "few copies."

VALENTINE & CO., of Newark, N. J., write as follows: "We take pleasure in saying that we have sold double the number we expected to, and have only a few more left. It is a good book, and deserves the success it has, which is no small amount."

QUEEN & CO., of Philadelphia, report a "number" of the books left, which they shall be glad to dispose of at the regular prices.

W. P. BUCHANAN, of Philadelphia: "We have four left."

JAMES S. CUMMINGS, 106 North Charles Street, Baltimore, Md.: "We have in stock four paper covers, two library editions."

F. HENDRICKS & CO., of Syracuse, write that "We have on hand to-day only six paper covered 'Times Annuals' for 1892. Our sale has been larger this year than ever before."

BARKER & STARBIRD, of Boston, write: "We beg to say that out of a total of 325 copies we have but eight left. These we can dispose of easily to our local trade. We have beaten last year's sale by over one hundred copies."

E. W. NEWCOMB & CO. beg to say that "We have only six paper and two cloth-bound 'Annuals' for 1892, and about the same for 1891. They are for sale at the regular rates."

WILBUR C. LAMPHIER, of Lynn, Mass., reports five copies left; "but wish I had more, as I think it would be a very good advertisement."

JOHN W. MORRISON, Pittsburgh: "We have eleven copies."

A. M. KNOWLSON, Troy: "We have four copies on hand."

JAMES W. WHITTLESEY & CO., of New Haven, report one copy in cloth and three in paper.

J. F. LLOYD, 845 6th Avenue, New York City, has 25 copies yet unsold.

WOODARD, CLARK & CO., of Portland, Oregon, report some unsold copies for the '92 issue.

F. S. CROWELL, of Mount Vernon, reports the following "Times Annuals" on hand:—1887, two copies; 1888, three copies; 1890, one copy; 1892, one copy.

For Photographic Mechanical Process Workers.—We have just received a superior lot of improved wood screw vises, for holding any size glass, from 8 x 10 down. Price 60c. each.

FOR 1893.

As so FEW of the "American Annual of Photography and Photographic Times Almanac" for 1892 are left in the hands of dealers [the publishers being entirely sold out], this issue will soon be at a premium, like the issue for "89," and this, though the edition of the book for "92" exceeded 16,000 copies.

Not only have advertisers commenced to secure space in the 1893 issue of the "American Annual of Photography," but the dealers have already begun to place their orders for that volume of the book.

ROBERT AUCOCK, of Utica, under date of April 18th, writes: "I wish to place order for fifty copies (have just six left), also to engage one-half page of advertising space in same."

W. C. CULLEN, of 62 William Street, New York, orders 100 copies of the 1893 issue, and takes one page of advertising space in same.

C. H. Loeber, of 111 Nassau Street, N. Y. City, places his order now for 500 copies of the book.

Others who have taken advertising space are as follows:

PROSCH MFG. CO., one page.
E. W. NEWCOMB & Co., one page.
J. C. SOMERVILLE, one page.
DOUGLAS SHUEY Co., one page.
G. W. WILSON & Co., two pages.
H. G. RAMSPERGER & Co., half a page.
SCHULTZ PHOTO EQUIPMENT Co., half a page.
PHYSICIANS' SUPPLY MFG. Co., quarter of a page.
THOS. H. MCCOLLIN & Co., quarter of a page.
C. H. RUTHERFORD, quarter of a page.
GEO. M. BABB, quarter of a page.

Some have eyes, and yet they see not—however, none but the blind could fail to see and enjoy the exquisite beauty and artistic impressiveness of the "Photographic Studies," twelve in number, published by The Scovill & Adams Co., 423 Broome Street, N. Y. City.

One need not be an art student nor an art critic to fully and delightedly enjoy the "Photographic Studies," issued by The Scovill & Adams Co., N. Y. city, N. Y. These studies are twelve in number, and are photo-gravured from the best representative photographic negatives by leading photographic artists. The subjects of these studies are such as to please and interest all classes of people. None are mysterious, hazy, or super-artistic in character or location. They are simply exquisite in selection and execution, and are a source of endless and infinite pleasure and culture, either in the artist's studio or in the home.

The collection includes: "Dawn and Sunset," photographed by H. P. Robinson; "Childhood," photographed by H. McMichael; "As Age Steals On," photographed by J. F. Ryder; "A Portrait-Study," photographed by B. J. Falk; "Solid Comfort," photographed by John E. Dumont; "Ophelia," photographed by H. P. Robinson; "No Barrier," photographed by F. A. Jackson; "El Capitan," photographed by W. H. Jackson; "Still Waters," photographed by J. J. Montgomery; "Surf," photographed by James F. Cowee; "A Horse Race," photographed by George Barker; "Hi, Mister, May We Have Some Apples?" photographed by George B. Wood.

They are printed on Japan paper, mounted on 11 x 14 boards, and enclosed in an ornamental portfolio. They will be sent by the publishers to any address, post-paid, on receipt of $3.—*The Springfield News.*

Business Notices.

FOR SALE.—$400.00 cash; gallery established 1881, on Main Street, Norfolk, Va.; must be sold by May 1st. Address owner, I. D. BOYCE, 1113 F Street, Washington, D. C.

RAPID RECTILINEAR LENSES AT COST.—4 x 5, $5; 5x7, $12; 5x8, $7; 6½x8½, $8; 8x10, $12; 10x12, $18; 11x14, $24. Write for price list. W. P. BUCHANAN, Importer, Philadelphia.

BACK NUMBERS OF SUN AND SHADE, including Nos. 3, 10, 11 and later issues, in perfect condition, 25 cents each. Regular price is 40 cents, and the earlier numbers are at a premium. THE PHOTOGRAPHIC TIMES PUBLISHING ASSOCIATION.

WANTED.—Vols. 1, 2, 4, 5, 7, 8, 10, 12, 13, 17, 18 and 19 of THE PHOTOGRAPHIC TIMES, bound or unbound. THE PHOTOGRAPHIC TIMES PUBLISHING ASSOCIATION.

WANTED.—A second-hand Extra Rapid Euryscope Lens 10 x 12, and also a Rapid Euryscope, 6th series, 6½ x 8½. State lowest cash price. Address C. H. MILLER, 3400 N. 19th St., Philadelphia, Pa.

FOR SALE.—Gallery on Pennsylvania Avenue, Washington, D. C.; complete outfit; large number of negatives; only for cash. Address, care of Mr. W. B. Brittain, CARRIER No. 44, City P. O.

FELT BACKGROUNDS, $1.50 per yard; a 6 ft. x 6 ft. ground only $3, by mail $3.35. THE SCOVILL & ADAMS CO.

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Dear Ser:—"You have used excellent judgment in selecting goods for me, and I shall take pleasure in recommending you to others."

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THE 4 x 5 HETHERINGTON Prize Magazine Hand Camera. The new Petite 4x5 and 5x7 Kamarets; also the 4x5 Hawkeye Cameras, and the new 5x7 Folding styles. Orders by mail promptly filled by C. M. BROCKWAY, 33 Worth St., New York.

CORRESPONDENCE SOLICITED by a photographer who intends visiting Mexico and the Northwest, or any special place to which it is desired he should go, for the purpose of making stereoscopic or other photographs. Correspondence solicited with a view of selling the right to publish such negatives as he shall make or the negatives themselves. H. MILLER, 578 Kosciusko St., Brooklyn.

THE UNDERSIGNED has a few 6x5 Dallmeyer Rapid Rectilinear Lenses which he will sell for 20 per cent from list prices. These lenses are a late importation and are all warranted. Address "TOURIST," care The Scovill & Adams Co.

THE FINEST Platinotype Solar Enlargements and contact prints, in black and sepia, are made by THE PLATINOTYPE CO., 39 South 10th St., Philadelphia. Send for price lists.

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6 A	Dallmeyer Port. Lens		$350
5 A	" " "		290
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GOVAN & CRAMPTON, 5 Clinton Place, New York.

LANTERN-SLIDES AND HOW TO MAKE THEM, by A. R. DRESSER.—A new book, very complete and thoroughly practical. Only 25 cents. Sent postpaid on receipt of price by THE SCOVILL & ADAMS CO.

A SPLENDID OPPORTUNITY FOR A FIRST-CLASS PHOTOGRAPHER.—In the large and beautiful city of Guadalajara, with 120,000 inhabitants—the second city in Mexico. For sale or to rent—after having made its owner a fortune—a photographic gallery beautifully situated in the centre of the city, completely furnished with all modern appliances. To be sold at cost price, $4,000, or for rent at $150 per month, including living apartments. First-class custom, on the basis of $12 for Imperials. For further particulars, address Sr. Lic. J. MIGUEL G. HERMOSILLO, Apartado 12, Guadalajara; or O. DE LA MORA, 2da San Francisco, 4, Fotógrafo, Mexico City.

THE finest-fitted Dark-Rooms in the United States are open for the accommodation of Amateurs, at 122 W. 36th Street. DARLING, Photographer.

THE ELDORADO BENCH AND WALL COMBINATION makes eight different combinations, every one of which is effective and artistic. Just introduced by THE SCOVILL & ADAMS CO. Price $20.00.

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NO FUMING, NO BLISTERS.—Experiment with all the "papers" advertised, and learn. But when you want to make choice, spotless prints use WISSAHICKON SENSITIZED ALBUMEN PAPER. Tone it in compound bath and squeegee on ferro plate, if you like. Send 2 cent stamp for 4x5 sample to JOHN HAWORTH, 641 Arch Street, Philadelphia.

FOR SALE.—Half interest in a well-established, good paying photographic stock business in New York City. Having other business cause for selling. Address for terms, etc., "STOCK," care of THE PHOTOGRAPHIC TIMES.

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Several ladies and gentlemen, amateur photographers not connected with this institution, have expressed a desire to contribute specimens of their skill to the annual School Exhibtion held on the Assembly Grounds in July and August. In fact, several such have already sent exhibits

We shall receive with pleasure such photographs, and invite all amateurs and professionals to assist us in making the Chautauqua School Exhibition of 1893 superior to any of its predecessors.

For particulars apply to

CHARLES EHRMANN,
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423 Broome St., New York; after July 1st to Chautauqua Assembly Grounds.

LANGILL. 10 East 14th Street, makes all kinds of outdoor negatives. Portrait photographers will do well to consult him when such is required. First prize for Architectural photographs, P. A. of A.

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Para-amidophenol (pure)	100 grains
Sodium sulphite (crystals)	3 ounces
Potassium carbonate	1½ ounces
Water	32 ounces

FOR USE.—Take 1 ounce of the above solution and from 2 to 4 ounces of water, according to the length of exposure.

The stronger the solution the greater the intensity of the resulting negative; the more diluted the solution the greater softness and more detail.

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Position as operator and retoucher; good all-round man; 25 years' experience. Box 333, Deposit, N. Y.

A young amateur, of good habits and single, desires a situation in gallery where he can work under instructions. Address Fred. W. Knapp, Thomson, Illinois.

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By a first-class wet plate operrtor, also A No. 1 printer; J. H. Hamill, 2518 Sartain Street, Philadelphia, Pa.

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An expert photographer would like to be attached to a scientific expedition or a travelling party; competent and willing to take charge of the operating department of a first-class house; references from renowned Parisian houses. Address Emile Lacas, 107 W. 15th St., City.

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The Porcelain Picture. Towler, New York, 1865. Paper, pp. 47	25
Orr's Circle of the Sciences, Vol. VII. (contains "The Photographic Art," by James Martin, 204 pp.). London, R. Griffin & Co., 1860. Cloth, 12mo, pp. 574	50
The Practice of Photography, by Robert Hunt. London, R. Griffin & Co., 1857. Limp cloth, pp. 126.	25
History of Photography, Tissandier, translated by Thomson. London, Sampson Low & Co., 1876. Cloth, 322 pp. (binding stained)	25
The Carbon Process. Drummond, New York, 1868. pp. 113, paper	10
Photo-micrographs and How to Make Them. Sternberg, Boston, 1883 (pub. at $3.50; good copy)	1 00
American Annual Index, 1891.	05
Philadelphia Photographer, Vol. I.	1 00
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ODD NUMBERS AND VOLUMES OF PHOTOGRAPHIC JOURNALS.

Seely's American Journal of Photography, Vol. VI., Nos. 1–19 (July, 1863, to April, 1864).

Humphrey's Journal, Vol. XV., 1863, Nos. 10, 15, 16, 20, 21, 22, 23, 24.

Photographische Monatshefte, Nos. 7–19 (December, 1862, to December, 1863).

THE PHOTOGRAPHIC TIMES, Vols. III., VI., IX., XI. and XIV. Bound in red cloth, $1 each; regular price, $3.

American Journal of Photography (McCollin), Vol. V., No. 2; Vol. XI. (1890), complete, except Nos. 1 and 4. Vol. XII., except January, February and June.

Bulletin de la Société Française de Photographie. 2d series. Vol. VII., Nos. 1–6.

Anthony's Bulletin, Vol. XIX. (1888), complete, Nos. 1–24.

The Practical Photographer (English). Vols. I. and II. (except No. 18), 1890, 1891.

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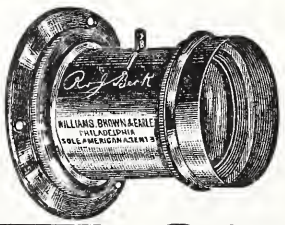
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Still Ahead: Read what is said of this Season's Work.

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W. H. McDOEL, Gen. Manager.
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PASSENGER DEPARTMENT,
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CHICAGO, April 7, 1892.

JOHN CARBUTT, ESQ.,
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MY DEAR SIR:—I have just returned from a long trip to the South, visiting the principal points of interest in Florida, and taking a run to Cuba. I took with me your **ORTHOCHROMATIC FILMS**, and had most wonderful success in getting views of noted spots. To say I am delighted but half expresses it. My trip took a month; making most of the journey in a private car I was enabled to rush round from spot to spot in a way which would not have been convenient under other circumstances, and, indeed, at the time being I hardly realized what I was doing, but now I am home making prints at spare moments; I am enjoying the trip over again, rendered possible by the camera.

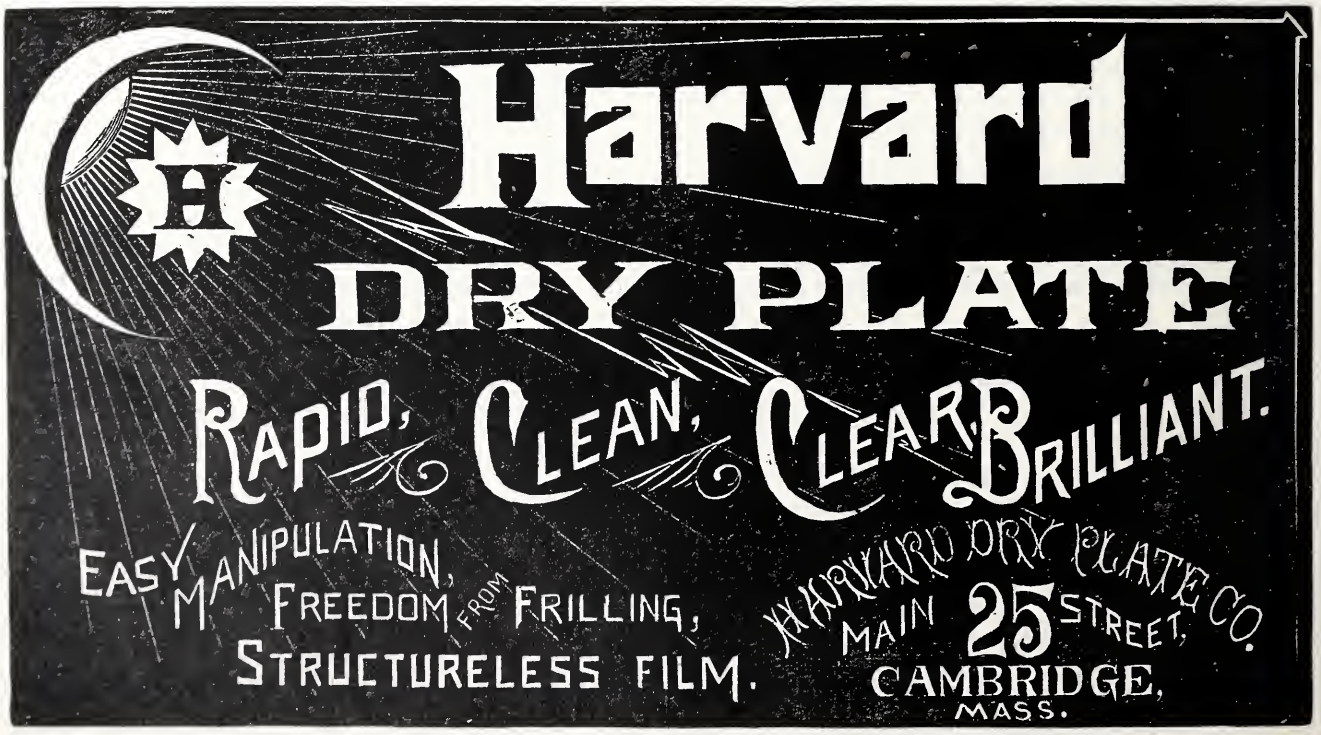
Very truly, JAMES BARKER.

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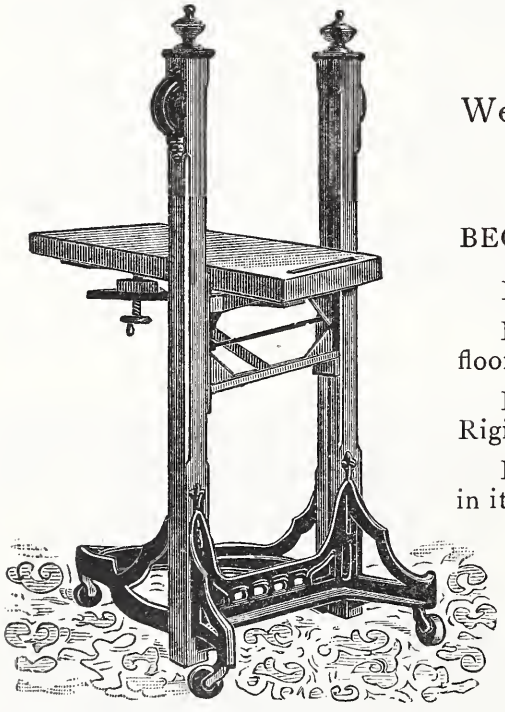
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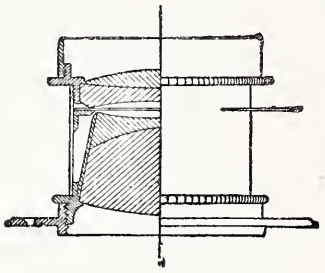
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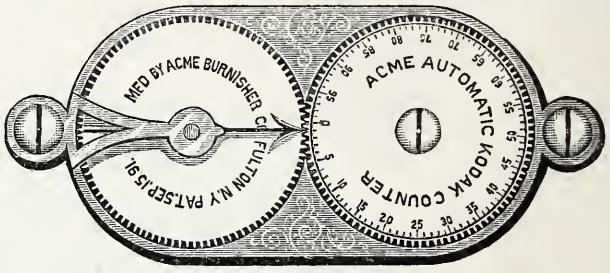
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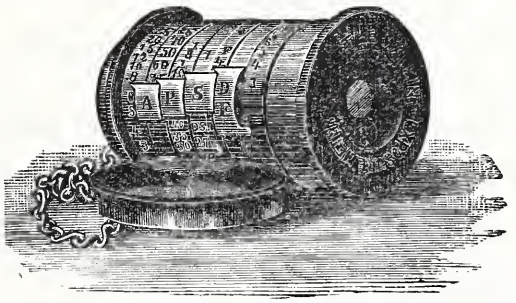
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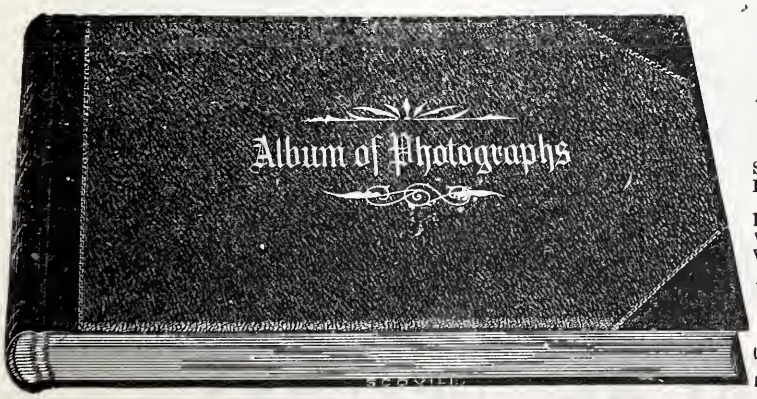
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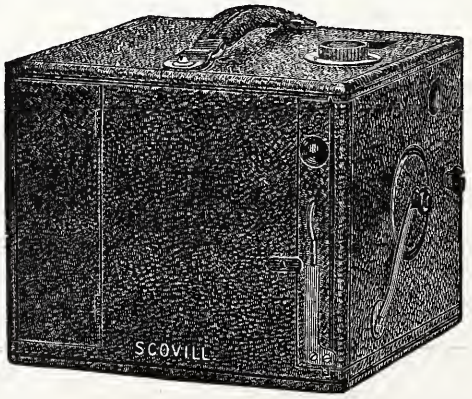
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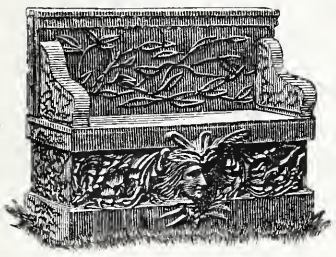
The Focusing Scale is beside the Finder, where it may be readily seen and adjusted.

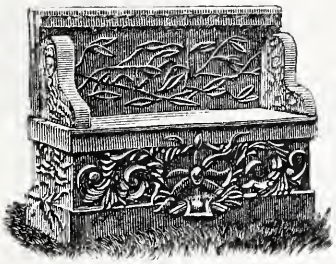
Price List.

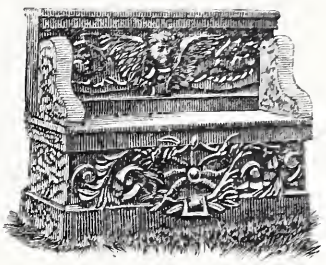
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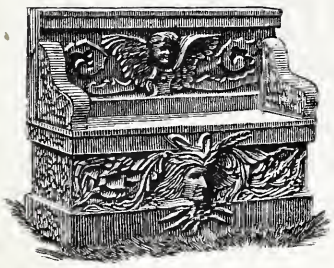
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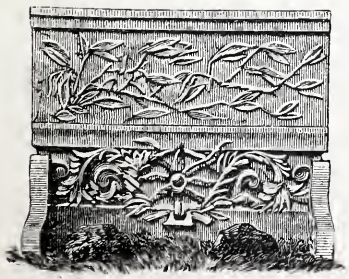
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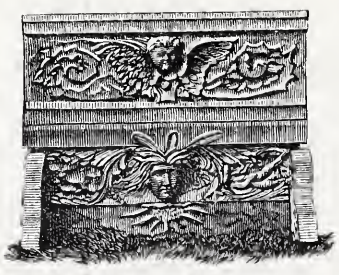
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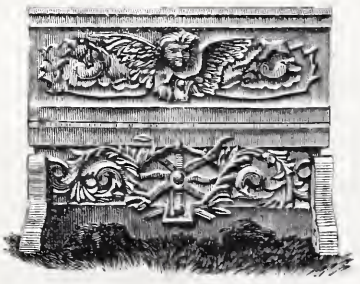
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On February 15th, the first edition of 16,000 copies of "The American Annual of Photography and Photographic Times Almanac" for 1892, being nearly exhausted, the publishers issued a circular inquiring concerning the number of books unsold, if any, and also concerning the demand which still existed for the book, with a view of determining the advisability of issuing a second edition. In response to this circular about fifty answers were received, from which the following are quoted at random:

Felix Reifschneider, Jr.: "We have not got one copy of the fifty copies we had. They sold very well, twenty-five the very first day I had them in."

Thos. H. McCollin & Co.: "'The Times Annual' for 1892 is a great success. We have had four lots and have only a half dozen copies on hand. There seems to be a steady demand for it."

W. C. Russell: "Have just sold out, . . . and will say I have never yet been stuck by having any of the American Annuals left on hand."

F. Hendricks & Co.: "We have on hand only five copies to-day of 'The Times Almanac.'"

Sweet, Wallach & Co.: "We have disposed thus far of over 250 copies. Think we will want more later."

Oscar Foss: "Of the 175 copies received from you not one now remains. I have ordered a few more copies, which will, I believe, supply the demand here. If I had ordered 250 copies instead of 175 I should have had no trouble in disposing of them this year."

B. Y. Morris: "I am entirely out of 'Annuals,' and will include in my next order some more."

B. C. Norrell: "My stock is exhausted. I may be able to dispose of more copies."

H. A. Hyatt: "May want about twenty-five more to carry me through the year."

Mullett Bros.: "May want about twelve copies more."

Charles Lawrence: "We are entirely out, and shall need a few more copies."

Zimmerman Bros.: "Have sold twice as many as we expected."

J. C. Sommerville: "We have disposed of 100 copies, and are not certain that we shall require any more."

Douglass & Shuey Co.: "Paper, all gone."

Robert Clark & Co.: "We have none left in stock of the 'American Annual of Photography and Photographic Times Almanac' for 1892."

Kimball & Mathews: "We are about out of the 'Annuals.'"

M. F. King: "I have none of the 'Annuals' left. Could sell a few more, most likely, if I had them."

Wilson-Hood Cheyney Co.: "We have three copies on hand, and shall order in half dozen lots as needed."

W. S. Bell: "We have no 'Times Annuals' in stock."

Barker & Starbird: "We have no over stock of the 'Annuals,' and although we received three separate orders from you, we may be obliged to give you a fourth, in the near future."

McCurdy & Durham: "We have sold all but one copy, and shall probably need more shortly."

Paul Roessler & Co.: "We have not now any of the 'American Annuals of Photography and Photographic Times Almanacs' for 1892, on hand."

Buchanan, Bromley & Co.: "We have on hand 11 copies of the 'Annual.' These will go very easily. If all our goods were as sure sale as these, we would be happy indeed."

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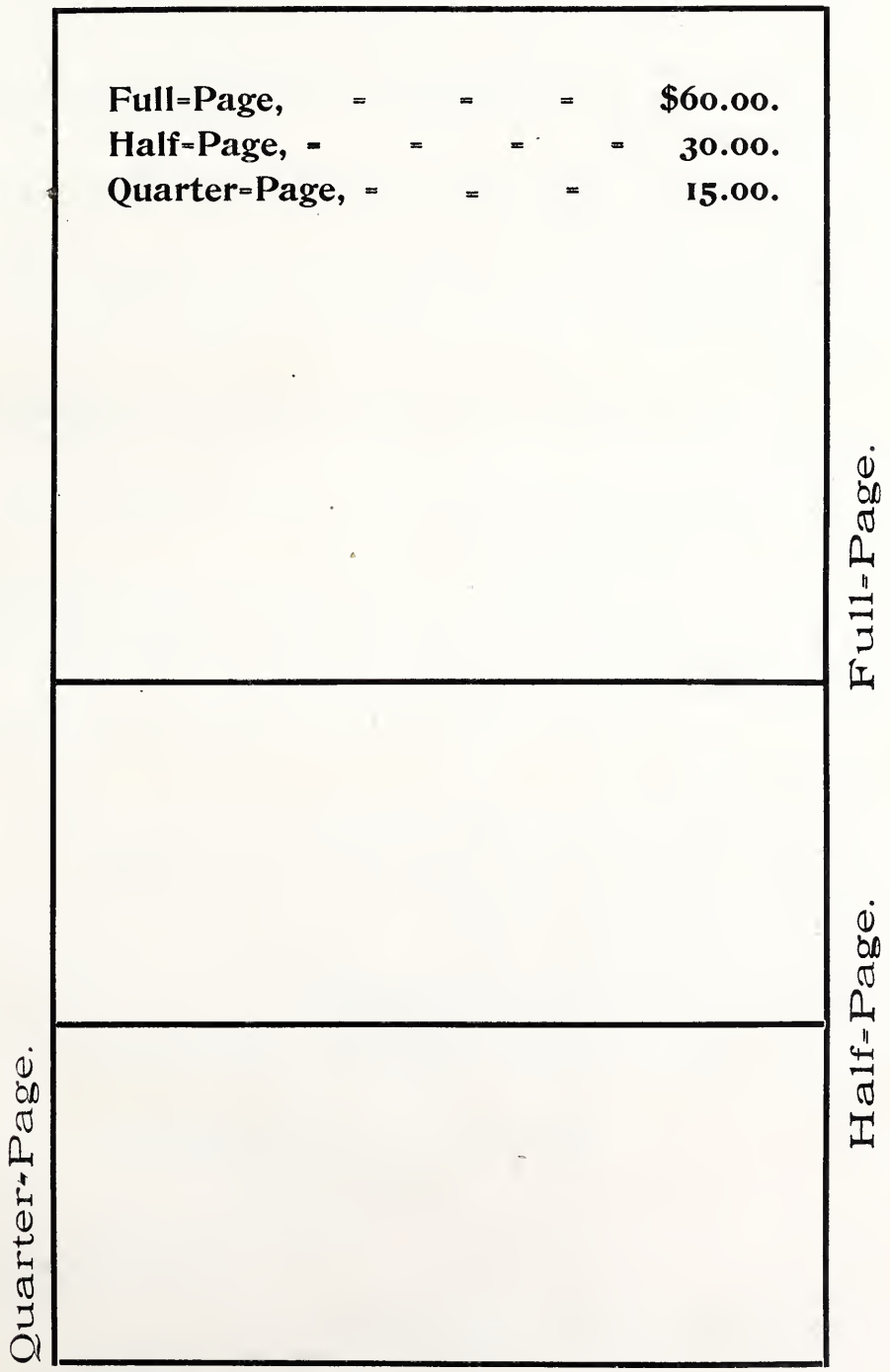
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PHOTOGRAPHIC TIMES (A)



CHARLES W. STEVENS, PHOTO.

N.Y. PHOTOGRAVURE CO

IN GLOUCESTER HARBOR

THE PHOTOGRAPHIC TIMES.

VOL. XXII. MAY 6, 1892. No. 555.

IN GLOUCESTER HARBOR.

OUR frontispiece is from a 4 x 5 negative by Mr. Charles W. Stevens, a prominent amateur photographer of New York City, and a member of the New York Camera Club.

The little photograph shows a dory in Gloucester Harbor, and was made with an ordinary hand camera.

The peculiarly happy rendering of the water makes this little picture appear almost like a delicate drawing in water-color.

It is one of a series of photographs by the members of the New York Camera Club, which we are fortunate in securing for our readers.

META-GELATINE.

GELATINE is a complex compound, consisting of glutine and chondrine. It is insoluble in cold water into which it softens and swells by absorbing variable quantities of water, according to the proportion of chondrine it contains; the greater the quantity of this substance the harder the gelatine, the less water it absorbs and the greater the heat necessary to effect its solution in water. Hence the softness of gelatine; its solubility at a low degree of heat depends on the percentage of glutine, but as it never contains it in sufficient quantities for certain photographic purposes, one mixes it with very soluble substances, or cause a change in its constitution to impart the necessary qualities.

Gelatine dissolved in warm water loses it properties of taking into a jelly by cooling when it has been boiled for several hours, or by repeated boilings. This is due to the transformation of gelatine into a new compound termed glycosine (amid acetic acid $C_2 H_5 NO_2$). Necessarily before this transformation takes place, gelatine passes through various intermediate states, and it is thus one can obtain a product which does not take into a jelly before an objectionable quantity of glucosine be formed. This product has been termed *meta-gelatine* by Maxwell Lyte who introduced it in photography to prepare dry collodion films which keep remarkably well and possess a great sensitiveness. (1857.)

The preparation of meta-gelatine by boiling is long and tiring. A more expeditious process is the following: Let soak for an hour or so, until well swelled, one pound of hard gelatine, Coignet's, in cold water; then place it on a sieve until well drained. Put it now in a suitable porcelain vessel and dissolve it at a low temperature. This done, add 26 drachms of pure oxalic acid,* cover the vessel and let boil for one and a half hour. Let cool then, and if the gelatine again takes into a jelly, it will, however, be so modified as to be soluble at a much lower temperature than before. Various degrees of solubility can be thus obtained. Should you want a product that will keep liquid, it should be again boiled for, say, half an hour.

This done, add by small quantities, in order to avoid a too great effervescence, pulverized chalk to neutralize the acid. The neutralization is complete when a new addition of chalk produces no more effervescence. Let set, then, the calcium oxalate formed and decant, and as the liquid is still milky on account of some of the oxalate which remains in suspension, add the white of two eggs diffused in three ounces of water, and after mixing thoroughly, heat the whole to ebullition, whereby the albumen in coagulating entangles the parcels of oxalate, and by filtering, a liquid perfectly clear is obtained.

To keep the solution of meta-gelatine one adds to it a few drops of creosote, or of thymol, or of carbolic acid, or one-sixth its volume of alcohol, according to the use for which it has been prepared.

* Sulphuric acid can also be employed, but the boiling should not last more than fifteen minutes, and after allowing the compound to cool, boiled again once or twice for the same period; glycosine and leucine are formed.

Nitric acid cannot be employed, oxalic acid being the result.

Copyrighted.

The uses of meta-gelatine in photography and its industrial applications are indeed very numerous to soften and render more soluble too hard gelatines.

Diluted it can be employed in conjunction with soluble glass (silicate of soda) as a substratum in the preparation of gelatino-silver bromide and of collo-photographic plates.

In the carbon process, two parts of Coignet's gelatine can be used in connection with one part of meta-gelatine, to obtain very soluble tissues.

For the washing-out typo-photographic process, it will render good services.

The diluted solution sensitized with ammonium or potassium bichromate may serve to make transfers for the lithographic and engraving photo processes.

It can form the sensitive film in the direct photo-lithographic process. However, it is not a substitute to be recommended for gum arabic ; the reason is obvious.

Added to hard gelatine it forms a compound well adapted to photograving in aqua-tint, and also in place of grenétine and *colle de peau* for collo-photographic sensitive films. The proportion varies according to the hardness of the original gelatine from 3 to 4 parts of this for one volume of liquid meta-gelatine.

In the typo-photographic processes by etching, it can be used instead of bitumen or albumen.

It forms a good paste to mount photographs.

P. C. D.

PHOTOGRAPHY FOR BEGINNERS.

(*Continued from page* 214.)

Instantaneous Photography.

In the practice of instantaneous photography there is perhaps more genuine pleasure to be had than in any other branch of amateur picture taking. The same camera which has been used for landscape will serve quite as well for photographing instantaneously, and the same lens also will answer quite as well under the most favorable circumstances ; for the modern dry-plate is so extremely sensitive that in a fair amount of light even a slow lens will succeed in making an instantaneous photograph.

If the day is dark, however, or the moving object is passing very rapidly before the camera, so that an extremely short exposure is required, a lens termed a rapid "rectograph" or "rectilinear," consisting of a "double combination," is required. These more costly lenses are fitted with an exposing shutter, by which the quickest exposure can be made automatically. They are also arranged so that longer exposures may be given when desirable, as in photographing landscapes or architectural subjects ; thus, a good instantaneous lens supplied with an improved exposing shutter will answer for instantaneous purposes, portraiture, landscaping and other kinds of photographic work.

To fit a landscape or portrait lens for instantaneous purposes, we must supply it with a quick exposing shutter. There are many kinds in the market of various designs and prices, but the simple gravity or "drop" shutter will answer all purposes very well, at least in the beginning of instantaneous work. This shutter costs but a dollar and a half, and may be easily adjusted to the lens when it is desired to make instantaneous photographs. When we do not require its aid, it may quickly be removed from the lens and laid one side. Sometimes these "drop" shutters are made to release by means of a slight pressure of air sent through a rubber tubing by squeezing the bulb at its end. This is a convenience, but it is not necessary, for the release can also be given by a slight touch of the hand.

It will thus be seen that instantaneous photographs can be made by merely applying a simple drop shutter to the lens and camera which has already been purchased. For many purposes, however, a specially constructed hand camera, known under various forms as the "detective" camera, will be found very convenient. In fact, it is almost necessary to use one of these hand cameras if the fleeting scenes of street life in a large city, the quickly passing views of a trotting horse on a racing track or roadway, the swiftly moving pictures seen from a car window, steamboat, or yacht, or those properly called detective pictures, made of people without their knowledge, are to be photographed.

When a tripod camera is used, a "finder" should always be affixed to the box on its top, for it is not easy to quickly move a camera on a tripod, so as to catch a fleeting object exactly on the middle of the plate. The finder, or "view-meter," as it is sometimes called, shows one exactly when the moving subject is opposite the middle of one's plate, so that it is only necessary to release the shutter in order to catch the picture as securely as if the subject were stationary.

Let us now see wherein this process differs, if at all, from the other branches of photographic work. In the first place, as has already been said, unless our lens is a very quick-working one, strong sunlight and clear atmosphere are necessary to make

good instantaneous photographs. The light must fall from behind the camera full upon the object before it, so as to give the strongest illumination. The lens must have the largest opening possible, so as to admit the greatest amount of light, and the dry plate must be extremely sensitive. There are many developers in the market already prepared for the amateur's use, and it is fully as well, at least in the beginning, and more economical, to use one of these ready-prepared developers instead of making one's own. In case one should want to make it for himself we will give the exact formula. It is composed as follows :

No. 1.

Pyrogallol	1 ounce
Sulphite of soda, crystals	4 ounces
Sulphurous acid	4 ounces
Water	10 ounces

No 2.

Carbonate of potash	3 ounces
Carbonate of soda, granulated	1 drachm
Water	10 ounces

The developing solution is formed by taking 1 drachm each of these solutions (Nos. 1 and 2), to 1 ounce of water. In developing instantaneous negatives we must proceed as if treating an underexposed plate, using rather more of the No. 2 than of the No. 1 solution. Sometimes a preliminary immersion of the plate in No. 2 solution and water before the No. 1 has been added, is advantageous. The No. 1 can then be added, and, as the development progresses, increased until a full and proper density has been obtained on the negative. The fixing of the negative differs in no way, of course, from the process as applied to other negatives; and the printing, toning, and subsequent treatment of prints are also the same.

Instantaneous photography is but a few years old. The introduction of gelatine dry-plates about ten years ago made it possible. Before that time, several seconds was considered a very short time for the camera to make a picture ; now photographs are made in the infinitesimal fraction of a second. With the quickest-working lenses and the most sensitive plates, it is not even necessary that the light be strong or the atmosphere clear. Good instantaneous photographs have been made on dark days, and even during a gentle rain. By means of the magnesium "flash" light, daylight is not even necessary, for its intense blue light is sufficient to illuminate scenes at night, and in dark places where the sun's rays never penetrate. But of this interesting development of modern photography we must speak in a separate chapter. Having learned how to make instantaneous photographs by daylight, we shall be the better prepared to take up this wonderful process.

KALLITYPE NO. 2.

Kallitype No. 1 consisted in preparing a sheet of paper with a ferric salt, oxalate or citrate, generally, then, after isolation, in developing the faint image with a weak solution of silver nitrate acidified by citric acid, etc. In Kallitpye No. 2 the silver is added to the ferric salt solution free from the ferrous compound. However, this has not a great importance, provided the ferrous salt is not in great quantity, for any traces of it will in a very short time precipitate a little silver nitrate, and, after filtration, the sensitizing solution can be used.

The sensitizing solution is prepared according to the following formula. It keeps pretty well in the dark. We advise, nevertheless, to prepare only the quantity wanted for actual use ; better and more certain results are obtained :

Potassium ferric oxalate	8½ drams
Silver nitrate neutral*	1½ drams
Oxalic acid	5 grains
Water	6 ounces

Potassium ferric oxalate can be replaced by the same quantity of ammonium ferric citrate when the sensitive paper is to be kept for a long time. Ferric lactate gives also excellent results.

To prepare the sensitizing solution dissolve the oxalate in five ounces of water and add the oxalic acid ; on the other hand, dissolve the silver nitrate in the remaining water, mix the two solutions, let stand for a few minutes and filter. This should, of course, be made in the dark-room.

As in every photographic process which is based on the reduction of a ferric salt by the agency of light, it is advantageous, in order to obtain a brilliant image—which results from a strong reduction of the salt in question—to size the paper with an organic compound, gelatine or arrowroot. The latter is quite excellent. We need not explain how to size the paper. All that is necessary to say is that it is done as for the platinotype process described by Pizzighelli.†

The paper may be sensitized by floating for a moment or by brushing ; and it should be dried rapidly and thoroughly in the dark-room, and should be wrapped in blotting-paper and kept in a

*It is well to roast it; that is to powder and strongly heat it for a long time in a small evaporating dish over a water bath.

†See "Photographic Reproduction Process." A practical treatise of the photo-impressions without silver salts. No. 38 of the Scovill Photographic Series.

dry place or in a paper preservative box. It works better when freshly prepared.

The Kallitype paper is exposed to light under a negative cliché until the details in the shadows are visible. The exposure time varies necessarily with the energy of the light and the intensity of the negatives, which should be somewhat more intense than for printing on albumen paper. In good sunshine, four or five minutes will likely be sufficient, and about four times as much in the shade.

If, before development, the print is kept in a damp place, ferric oxalate, being hydroscopic, absorbs moisture and the image commences to develop, but not to a very great extent. The reader knows that dessicated ferrous salts do not act on silver nitrate equally well dry, and that the presence of water is a *sine qua non* to effect the union of the elements or their dessication in almost every chemical phenomenon.

To develop the image, the print is immersed in

Rochelle Salt (Potassium sodium tartrate)...2 ounces
Borax.....1½ ounces
Potassium bichromate, sol. 5:200.....15 to 25 minims
Water.....16 ounces.

The tone obtained with this bath is black. To obtain a purple tone, similar to that of albumen silver photographs, the quantity of Rochelle salt should be doubled and that of borax diminished to ¼ or ½ ounce.

Vigor and contrast are promoted by potassium bichromate. This salt is an energetic oxidizing agent, acting in opposition to light, so to say, tending to convert the ferrous salt into ferric, hence, according to the effects desired, the percentage can be diminished or increased to 25 minims or more, but not, however, to excess, else it would impair the half-tones.

The developer keeps pretty well, but it is better to make it fresh every other day or when wanted for use.

The image must develop slowly, and this is necessary in order that the yellowness of the paper entirely disappears in the fixing bath, requiring an immersion of from ten to twenty minutes.

If the image at once flashes out the exposure time has been too prolonged. If the details lag back it is too short. By a little practice the right exposure can be easily guessed.

The fixing bath is a solution of concentrated aqueous ammonia, .880, in a quart of water, in which the proofs should remain for about ten minutes, then transferred into another bath in the same manner compounded, for the same period, after which it is washed in water several times renewed.

The Kallitypes are most likely permanent much more so anyway than photographs obtained by the ordinary silver process; but as silver is acted on by the agents of sulphuration, they may, however, undergo a certain change. Time will tell.

This process is patented in England by William Walker James Nicol since February 27th. We do not know if it is also patented in this country.

P. C. Duchochois.

THE NEW JENA GLASS LENSES.

I HAVE been experimenting with a new lens from the manufactory of Ross & Co., of which I can truly say that it introduces me to a new world of possibilities in photography. Taken with another form, made by the Zeiss (Berlin) formula, both employing the new barium glass, it will probably reform the optics of photography for certain uses, especially those of the out-door worker. The new Ross lens, called "Concentric," is a landscape and architectural lens, embracing an angle of about 105 degrees on the length of the plate, and though sent out with only stops of the maximum aperture of F/22, I opened mine out to F/18 at once, and work with that only on a plate 7 x 9 inches, which the 7 inch lens covers to within a half inch of the very corners, so that when the photograph is trimmed it fits the field of the lens perfectly, but the peculiarity of the image is that even with this large aperture it gives perfect definition from side to side, with a depth of focus which I have never seen in any landscape lens unless with a small stop, say F/60. And the definition is such that up to the corners of a view 6 x 8 there is no improvement when employing a smaller stop than that which I have employed. The field, with that stop, is so flat that there is no difference to be found in the focus between the centre and the margins, *i.e.*, the curvature of the field is practically abolished. The advantage of this combination appears on the surface, and when I say that the exposure, with the opening I use, is only the fraction of a second on a well-lighted subject, it will be seen that the photographing of groups may be done without the old device of drawing the individuals up in the segment of a circle, and the rendering of subjects in extended planes made more rapid and natural. But for the landscapist the advantage of being able to render the extended field with all the delicacy of detail desirable, with the quality of vigor in the negative only to be got with a large stop, and the advantage of getting figures, &c., with less difficulty than with any old

form of lens. I enclose some samples of the work done by my 7 inch lens with the full opening as I have enlarged it, from which you will see that when the lens is worked to the usual extent of landscape work, that is to say, giving an angle of from 60 to 70 degrees, there is absolutely nothing to be gained by the use of a smaller opening than that which I employ.

I am having the iris diaphragm opening to F/16 put into a series of these lenses which I shall use in the place of the old Ross portables which have been my reliance for landscape and architectural work, using them with a stop of about F/100, so as to secure the definition necessary for enlargements. I consider the detail as rendered with the largest stop recommended by the makers of the lens, F/22 as satisfactory for the, to me, very important purpose of enlargement, as I have been in the habit of doing ancient architecture for scientific reference from small negatives, which were afterward enlarged to four or five times the original dimensions. So delicate, indeed, is the rendering of detail that an ordinary silver print does not do it justice, and it can only be judged from the negative. The superiority for copying interiors and obscure subjects is clear, but there is another quality which is the consequence of the flatness of the field, not less important, viz: the depth of focus, which is so great that the finding of the precise point of finest definition becomes very difficult, and I have moved the plate over a space of nearly the quarter of an inch without losing fair definition, and the slight softening of the forms which is to many people the acme of the quality of a photograph, is obtained as easily as the sharpness I desire, by simply putting the lens a little out of focus, when the whole field becomes nearly equally softened, while all the old devices only shifted the indefinition from one part of the field to another.

I have exchanged all my old rectilinears, or shall do so as the others come to hand, for the new lens, either of the Zeiss or the Ross formulas, for though the same glass is employed, it is by a very different combination in the two patents, the Ross being a symmetrical doublet, whose outer surfaces form segments of a sphere. I am as delighted with the new lens as any school-boy ever was with a new gun, and it almost tempts me to take up photography as a constant occupation. The beauty of these negatives is something which surpasses all my experience of photographing. Another means of obtaining the effect of which some photographers are ambitious, the "diffusion of focus" is easily obtained by this lens by employing an opening a little larger than that with which it gives perfect definition, when the whole field becomes "diffused" more or less according to the excess of aperture.

W. J. Stillman.

METHOD FOR INCREASING THE SENSITIVENESS OF ASPHALTUM TO LIGHT.

[Translated from "Comptes Rendus," of the Transactions of the Photographic School of Vienna, especially for THE PHOTOGRAPHIC TIMES.]

THE most sensitive asphaltum is the bitumen of Judea. Niépce and Niépce de St. Victor have employed it in their experiments, etc. The latter dissolved the bitumen in the oil of lavender, coated the plate with it, and, after isolation, developed the image with a mixture of three parts of rectified petroleum and one part of benzine. In 1853 he described a process in which he used, as a sensitive varnish, bitumen to which he added $\frac{1}{5}$ of its weight of wax and which he dissolved in benzine. He then recommended to add, for exciting the sensitiveness of the sensitive film, an anhydrous solution of sulphur liver in a few drops of lavender oil. Later, in 1854, he published a process consisting of exposing, before use, the pulverized asphaltum in thin layers to the action of light during two days.

To the oil of lavender, he added a little oil of lemon to impart elasticity to the film and to increase the sensitiveness.

In 1878, Kayser, of Nurenberg, published a paper on its researches concerning the natural asphaltums.

To increase the sensitiveness, he treated the asphaltum of Assyria with boiling alcohol (D = 0.835) and obtained 4 per cent. of an oily, bituminous and yellowish substance (α), having about the formula $C_{32}\ H_{36}\ S$, which gives per cent. 6.97 of sulphur.

The residue, after treatment with boiling alcohol, was treated by boiling ether (D = 0.725), which gave a solution of 44 per cent. in weight of the bitumen employed. The part soluble in ether was a brown-black, resinous mass (β) without odor, melting at 65 deg. C., and whose composition corresponds to $C_{64}\ H_{92}\ S_3$, giving a proportion of 10.04 per cent. of sulphur.

The insoluble part, in alcohol and ether, is a resinous, black, brittle and inodorous substance (γ), easily soluble in chloroform and benzine, but difficultly soluble in terpentine and petroleum, melting at 126 deg. C., having the formula $C_{32}\ H_{42}\ S_2$, and therefore containing 13.06 of sulphur per cent.

The resin soluble in alcohol is not sensitive to light; the two others are acted on, but the latter (γ) is the most rapidly acted on.

These experiments prove that one must, for photographic purposes, decompose the asphaltum into

its constituents and employ only the parts sensitive to the luminous action.

Hence, three methods :

1. To dissolve the bitumen in chloroform and to precipitate in three or four times the quantity of either.

2. To wash in ether the asphaltum grossly crushed, and to employ the dessicated residues for the sensitive varnishes (Kayser's method).

3. To dissolve the powdered asphaltum in as small a possible quantity of German turpentine and to precipitate by ether (Husnix's method).

Increasing the sensitiveness of the asphalts by incorporating sulphur.—The researches of Kayser have proven that the asphalts of Syria contain sulphur in their constitutive parts, and that their sensitiveness depends from the quantity of sulphur they contain. The most sensitive is the resin γ.

In my experience, says Mr. Valenta, I have had for my object to render the other parts as sensitive as the latter (γ).

Colophony and other resins become sensitive by incorporating sulphur into them.—If colophony be melted, and if, in the clear melted mass, about 15 parts of sulphur be added per cent, it dissolves. If, then, the temperature is raising to 180 deg. C., the mass blackens in evolving hydrogen dioxide, and some time after becomes entirely black, then the gaseous evolution slackens and ultimately ceases entirely.

By cooling one obtains a brilliant mass of pitch, of a disagreeable odor, containing sulphur and having a different solubility than that of the original colophony.

If one dissolves 4 grammes of this mass in 100 cubic centimeters of benzole or chloroform, a clear dark-brown solution is obtained which, spread on a zinc plate, gives, after drying, a thin film of resin of a golden-yellow color.

When exposing for a long time, this film to the sun, under an appropriated cliché, one obtains by development, with a little French turpentine, an image or reserve which does not resist the action of acid as well as the asphaltum images. Hence this preparation is not appropriated to zinco-photography by etching.

One should, therefore, directly incorporate the sulphur to the asphaltum.

After describing various operating methods to introduce sulphur in asphaltum, their success and their defects, Mr. Valenta gives the best process he has discovered, which is as follows:

One dissolves in a flask about 10 grammes of flower of sulphur in sulphide of carbon, and then add 100 grammes of powdered asphaltum, which entirely dissolves in a short time. In this dark-brown liquid, one takes, for trial, a small quantity with a pipette, dissolves it in benzole, after the sulphide of carbon is evaporated, and spreads the varnish on a zinc plate when, on exposure to light, the product will be seen not to have gained in sensitiveness.

One should now distillate the solution of asphaltum and of sulphur in sulphide of carbon and heat for a long time the residue on a sand bath, then raise the temperature of the same to 180 deg. C. Hydrogen sulphite commences to be evolved; one keeps up this temperature during a few hours, taking care not to overheat.

Thus treated the asphaltum presents a shining black-mass insoluble in alcohol, little soluble in ether, and entirely soluble in the oil of turpentine, benzole, chloroform and sulphur of carbon. A varnish compounded with 4 parts of asphaltum in 100 parts of benzole, spread on a zinc plate, forms a golden-yellow film much more sensitive to light, which, after a shorter isolation under an opaque cliché, gives by development with turpentine a clear and sharp image.

Development of the bitumen images.—The images obtained by means of sulphuretted asphaltum can be developed with every kind of turpentine oils, while the images made with Husnix's sensitive asphaltum can only be developed with German turpentine, known in commerce under the names of Hungarian or Russian turpentines ; I use in my process any one of the other turpentines, viz: French turpentine (it develops slowly and clear); the Austrian or American oil ; the latter should be rectified.

Non-rectified turpentine ordinarily contains formic acid.

To purify it, it must be shaken with carbonate of potash. Hence it is advisable of always using the rectified oil, which is positively neutral. Then let the plate cool for ten minutes, then pour on the oil of turpentine. The image appears quickly and develops very sharp. From the moment the image is visible, one stops the development ; wash thoroughly under the tap and expose it to the sun to harden the bitumen, then gum the proofs, etc.

Influence on the sensitiveness of the film of the products added to the bitumen varnish.—Ozonified air increases the sensitiveness, but ozone renders a part of bitumen insoluble in turpentine, and therefore the image does not develop well.

Iodine acts in the same manner ; on the contrary, chinone, from which I expected an excess of oxidation, is without action.

Guaiacum (a resin exuding from a West Indian

tree), which is sensitive by itself, may be added to the maximum proportion of 20 per cent. to asphaltum with advantage, since, in developing, the image is clearer.

Conclusion.

1. To prepare the sensitive asphaltum one dissolves 7.10 grammes of sulphur in a sufficient quantity of sulphide of carbon, then add 100 grammes of bitumen of Syria. The solution is then treated in the manner described to eliminate the sulphide, or, what is better, heated to 100 deg. C. during one hour in a mortar, working it with the pestle, then slowly evaporated in a large capsule until all the sulphide of carbon is eliminated, then kept at from 180 deg. to 200 deg. C. during a period of from five to six hours, avoiding to overheat. Thus prepared the asphaltum very faintly smells, if at all, the odor of the sulphide of carbon. It must be kept in a well-corked vial in a dark place.

2. To work by weak daylight, or when a great sensitiveness is wanted, it is well to remove from the asphaltum the resin β; to reduce it into powder and to shake it in ether, which is done in a large vial. After thus treating it for two or three hours, the ether is decanted, and the insoluble portion is dried on blotting paper.

3. For use, one dissolves four parts of sulphuretted asphaltum in 100 parts in volume of benzol (not benzine), one filters and dilutes until the solution, spread on a zinc plate, leaves a film of a golden-yellow color (it is well before use to expose the asphate in full sunshine during half an hour or one hour in an open vial.

4. To develop with rectified and neutral turpentine oil.

P. C. D.

ADVANTAGES AND DIFFICULTIES OF PORTRAITURE.

The portrait artist, whether painter or photographer, always commands more attention, and is paid better than his less fortunate landscape brother. A greater value is attached to a portrait by the original and his friends than any charming piece of scenery which he may possess. It requires greater care and skill to get a good picture of a man than of his house. Whether a picture is photographically or chemically good does not make any material difference to the majority of people. What they look for is a good pose, an agreeable expression, and a fine texture of the skin. If the photographer does not give them all of these they will not be satisfied. There are some who have excellent ideas about position. Men and women of good figure and appearance invariably require a certain amount of dash; plenty of action in their attitude is necessary. The student and philosopher, the statesman and soldier have their own peculiar notions about the pose appropriate to themselves. Let them try their ideas in this respect and you will notice, and everybody else will notice, that whatever they may know about study, philosophy, statescraft and war, their endeavors to pose successfully without the aid of the artist is a flat failure.

Actors and actresses naturally take good positions. It is their business to pose artistically. Their graceful carriage and attitudes is part of their profession. Babies pose gracefully; there is nothing stiff or set about the appearance of infants. It is always glide, squirm, kick, with their well rounded, delicately formed limbs. The majority of people who patronize ordinary galleries are as a rule very awkward and stiff. It will not do for the artist in such cases to lose patience, or try to force the sitter into a graceful, easy position. Handle your subject *not at all.* Direct his movements, and if he has ordinary intelligence he will follow your instructions. The manner and action of the operator will always be copied to a greater or less extent by the sitter. If you want a certain pose, show him how it is done; if he does not succeed at first in exactly imitating you, have him try it again, and every effort he makes in that direction will serve to take away some of his awkwardness.

Women as a rule take graceful positions, but it is often necessary to to give them suggestions, and in three-quarter and full-length figures the hands are always a source of annoyance; it is well to keep them in the background as much as possible.

It is often the case that some men and women when being photographed have an idea that the operator is only a handle to the machine, and I have heard that in more than one gallery in the city the idea is given by the proprietors that their pictures are superior to others simply on account of the instruments used. The handles or operators get small share of the credit. When such people as those mentioned above enter the skylight they are so puffed up by their own importance that a foolish, domineering expression is spread over their countenance which requires the utmost tact to dispel. Sometimes it will be necessary to use several plates before the frozen expresssion is thawed out. Again, there are others who feel nervous and uncomfortable. The gentleness of the operator will put them at their ease, and after

the first exposure they usually feel at home. We read much nowadays about the disposing of lines, harmony, contrast, etc. This is all very well, where complicated and inartistic drapery predominates, but at the present time woman's dress is artistically draped and designed, and there is no need of the photographer interfering with it. We have also passed the age when it is necessary for harmony's sake to drag in tables, rocks, trees and boulders for backgrounds and accessories. Contrasts are to be desired, but too strong contrasts are objectionable.

Lighting deserves to be treated exhaustively. It is a subject upon which much can be said, and it will give me pleasure to discuss it at length in a future article. All photographers cannot make good portraits. In fact, those who can are the exception. Judgment, care, pains and knowledge are necessary qualifications. To be successful in portrait taking an artistic education is essential, a thorough knowledge of light is required, developing must be understood, a hundred little points, ready at the fingers' end, are always useful. Avoid parallel lines; they have a disturbing effect. Backgrounds have been overdone.

Anything which detracts from the portrait or figure, whether background or accessory, should be dispensed with. It is much better to have a plain ground which throws the figure out in relief, than one that holds the attention while the figure is buried in rubbish.

We read sometimes in photographic journals about the individuality which should be shown in posing. By that is meant, as far as I can understand it, that photographers should not copy another's system of posing, but follow their own ideas. Any practical photographer knows that such advice is the sheerest nonsense. Positions cannot be copied; what suits one person would be entirely out of place for another. Ideas can be gathered by studying the works of good artists. Painters, sculptors, and in fact all who follow artistic professions, study the works of those who were regarded as authorities and experts. Why shouldn't the photographer do likewise? The new in art is always formed out of the old.

But the trouble to-day seems to be that we have too many photographers and too few artists. Why some of them are entitled to the name of photographer is a mystery. Many who make their living by practising photography know absolutely nothing about it. Position, light and shade, composition, developing, and all that is required to produce good pictures are very imperfectly understood by them. Away with your humbug of individuality. Give each subject his own individuality. Picture him with all his pleasing characteristics. How can you do it? By infusing into him or explaining your desire to show him at his best. In nine cases out of ten he will enter into the task of helping you with an expression on his face that will go far toward securing the desired result.

A well known writer says that though we travel the world over to find the beautiful we must carry it with us, or we find it not. The best of beauty is a finer charm than skill in surfaces, in outlines, or rules of art can ever teach, namely a radiation from the work of art, of human character. This is what we need to make a photograph successful, character and expression.

B. F. McManus.

Correspondence.

THE IVES PROCESS.

To the Editor of THE PHOTOGRAPHIC TIMES.

Dear Sir: In the TIMES, under the date April 22d inst., appears a communication entitled "The Ives Process," in which it is claimed that M. Lippmann is the real discoverer of the method of reproducing Nature's colors photographically.

About a month ago I translated this article from a French magazine for Mr. Ives, who, in his recent successful demonstration before the members of the New York Camera Club, read the translation and explained clearly that by the method employed by M. Lippmann it was utterly impossible to even approximately reproduce the colors of nature. This latter fact he will demonstrate at the Royal Institution in the near future, and give (as he has always done) his co-workers in color photography, full credit for what each has accomplished.

In the absence of Mr. Ives, I think this explanation is but just, don't you?

Very truly yours,

W. N. Jennings.

233 South 4th St., Philadelphia, April 25, 1891.

PHOTOGRAPHY

PHOTOGRAPHY—Far-reaching Art.
Fair Nature owns thee, lord and king,
Her forces all with willing heart
Doth serve thee and thy praises sing.

By subtile workings thou hast won
A tribute from the god of day,
An ally in the glorious sun,
And faithful serf in each bright ray.

Oh, wond'rous Art! Through thee we trace
The friends long passed unto the skies!
Through thee we find a dear one's face
That bids us from our grief arise.

We honor thee, and far and near,
Of all the Arts proclaim thee king;
And Sciences' votaries hold thee dear,
And at thy feet fresh garlands fling.

K. E. B.

Notes and News.

N. W. Owen, of Davenport, Iowa, has sold his photographic gallery.

The Montclair Camera Club had its first regular outing Saturday morning, April 30th.

Leo. F. Adt, of Adt Bros., Photographers in Waterbury, Conn., was graduated in Class of '92, of Albany Medical College, Wednesday afternoon, April 27th.

Newark Camera Club gives a complimentary lantern slide exhibition, Friday evening, May 6th, in the Young Men's Christian Association Hall, Clinton Street.

Obituary.—Dr. Theodor Schuchardt, of Görlitz, Germany, died on April 15th, in the 63d year of his age. He has been distinguished as an analytical and manufacturing chemist, his photographic chemicals having a world-wide reputation. With him we lose one of the pioneers in modern photography.

John W. Morrison, the well-known dealer in photographic supplies, assumes the duties of his office, as treasurer of the State of Pennsylvania. He writes: "as I is desiring to do justice to the State and myself, I shall devote my whole time to the place, and wishing to be free from all business cares, I have concluded to dispose of my business to my brother and his two sons."

Hugh Morrison & Sons will continue the business of J. W. Morrison, 10 Sixth Street, Pittsburgh, Pa. They will maintain the same careful policy in the future as in the past, and invite the continued favors of all old patrons.

Forest & Stream announce a series of prizes for meritorious work with the camera. There will be ten prizes in all.

First $25, second $20, third $15, fourth $10, and six of $5 each.

The competition will be open to the amateur only, and the subject must relate to *Forest & Stream's* field-game and fish (alive or dead), shooting and fishing, the camp, campers and camp life, sportsmen, travel by land and water. Pictures will be received up to December 31st of this year.

The Department of Photography of the Brooklyn Institute will hold a Print Exhibition in their rooms, at 201 Montague Street, May 10 to 24. The Committee having charge of the exhibition are: Gould W. Hart, Chairman; Dr. L. E. Meeker, E. J. Rice, J. W. Morrow, R. T. H. Halsey, W. H. Bedford, and J. C. F. Priest. On Wednesday evening, May 11, at 8 o'clock, Mr. Alexander Black, one of the editors of the *Brooklyn Times*, and a prominent member of the club, will give a very interesting illustrated lecture, entitled "Ourselves as Others See Us," in the Art Association Hall, 174 Montague Street. Mr. Black will show a novel collection of lantern pictures contributed by various prominent artists and photographic connoisseurs.

OXIDE OF ZINC IN ZINCOGRAPHY.

The action of oxide of xinc in zincography should really be described by an expert chemist, but inasmuch as my observations have been made during long years of actual practice they may be of some value. When nitric acid is applied to a polished zinc plate a black powder forms upon the surface of the plate. This powder, which I call oxide of zinc (really it is nitrate of zinc), and which also forms when light etching is done, must be avoided by the practical zincographer, because it repulses fatty substances. This tendency of the oxide is most plainly visible, if it has not been thoroughly washed off or otherwise removed before transferring a fatty impression. That my observations in this respect are correct is easily proven by the following experiment: Take a plate out of the etching bath, do not wash it with water, but simply dry by rubbing with blotting paper. A transfer is made upon the plate in the usual way, gummed and rolled up, but soon after the rolling up blank spaces and streaks will appear where the ink has not been retained by the plate; in these plates the oxide of zinc has done its work by preventing the fat adhering to the plate. It is a well-known fact that when transfers upon a zinc plate are washed off with oil of turpentine or gum there is always danger that the impression will not be clean after the plate has been rolled up again; it will appear smeared, and cleaning will do little good. There is good reason for this, and it will always happen when it is attempted to treat a zinc plate like a stone. The combinations formed by chemicals upon the stone are evidently different from those formed upon zinc, and especially gum and turpentine are substances which must be used very cautiously in connection with the latter material.

When turpentine is applied to zinc no fat is produced, but as soon as color is added zinc soap forms in connection with the zinc upon the surface, and a very small quantity of this is sufficient to cause the blurring of the impression, for the zinc soap, *i. e.*, a combination of the fat contained in the colors with the zinc oxide, cannot be removed from the plate, and cleaning or etching spoils or destroys the impression itself. The formation of zinc soap must, therefore, be avoided, and this can be done with the help of gum. In the first place the zinc plate should be gummed at the time the transfer is made, and the gum evenly distributed by means of a tuft of cotton, in order to prevent unequal thickness of the layer of gum or the drying of single drops. After the gum has dried thoroughly the plate is washed with pure oil of turpentine over the dry gum, without the use of water. The latter must be entirely avoided. The superfluous turpentine is then removed with a piece of cloth until the plate appears perfectly clean and no trace of ink remains. Now is the time to add ink to the transfer if it has been previously noticed that the picture upon the zinc did not retain a sufficient quantity of fat. It is only necessary to rub the

plate with a soft ball of wadding that has been dipped in transfer ink, and to clean it afterwards with turpentine. After this the plate may be wiped off with a soft sponge, the picture will then appear in pale grey, all lines contain sufficient fatty ink, and the rolling up can now be done without fear of seeing the impressions blurred in some parts; the whole picture will appear clean and bright, The action of the turpentine upon gum should be borne in mind; when washing with the former is executed dry, *i. e.*, upon dry gum, clean plates will always be the result. The washing off of a transfer over dry gum should also always be done in the case of stones, for to wash the moist stone with gum and turpentine, which has heretofore been in general use is, in my opinion, wrong, because the gum etches and produces in many cases, especially in the case of crayons, streaks upon the stones after the washing, which hinder the production of perfect impressions.—*F. Santner, in Freie Künste.*

KALLITYPY.

A DESCRIPTION OF THE IMPROVED METHODS, BY W. W. J. NICOL, PATENTED IN THE BRITISH EMPIRE.

MY invention has for its object the production of photographic pictures or images in silver by improved methods of carrying into effect the processes described in the specification of my former Letters Patent, No. 5374, dated March 29, 1889.

Whereas the processes therein described and set forth, though yielding excellent results so far as the quality and tone of the resulting pictures were concerned, were apt, inasmuch as the solutions employed for development contained soluble salts of silver, to stain the hands of the operator, it was found that this formed a serious objection to their general employment.

I therefore now proceed according to the following method—that is to say, I coat, in any convenient way, paper or other material with an aqueous or other solution of a ferric salt. This may be one or other of the following: ferric oxalate, citrate, tartrate, or other ferric salt which is sensitive to light. These may be employed singly, or mixed together in suitable proportions, with or without the addition of citric, tartaric, oxalic acids, or their sodium, potassium, or ammonium salts. To the above solution is also added a suitable quantity of a silver salt, and the whole is thoroughly mixed together. The above solutions may be applied to the paper or other material, if so desired, separately, and in any order, and in such relative quantities as may be found to give results most suitable for the purpose in view.

After the material, thus prepared and rendered sensitive to light, has been dried, it is exposed to light under a negative or other screen. I then proceed to develop the ferrous image produced by the action of light with a solution containing a salt of citric, tartaric, oxalic, boric, carbonic, or acetic acid, with sodium potassium or ammonium; or mixtures of these with one another in such proportions as may be found to give the requisite tone and brilliancy to the resulting images. When certain of these mixtures are employed, the addition of a small quantity of potassium chromate, or other suitable oxidizing agent, is necessary to ensure contrast and purity of the high lights of the picture.

The resulting prints are then washed in several changes of dilute ammonia to which may have been added a citrate or tartrate of potassium sodium or ammonium.

Or, I adopt the following method: The paper or other material, having been prepared as above described, is exposed to light as before, and is developed at once on the dilute ammonia mentioned above, with or without the addition of one or other of the salts mentioned as entering into the composition of the developer as described above.

Or, I adopt the following method, viz:—I prepare the paper or other material with one of the above ferric salts, and a suitable amount of one of the above-mentioned developing salts, and a solution of a silver salt. I thus obtain a sensitive surface which attains its full depth of tone by the action of light alone. The print then requires only to be washed in the dilute ammonia above mentioned.

I. In practising my invention, according to the first method above described, I use by preference, solutions of the following composition:

Water.....one hundred (100) cubic centimetres
Ferric oxalate.....fifteen (15) grammes
Silver nitrate.....three (3) grammes

The above forms the sensitizing solution.

The developer is as follows:

Water .. ..one hundred (100) cubic centimetres
Rochelle salt.....ten (10) grammes
Borax.....seven (7) grammes

To this is added one-tenth (0.1) to four-tenths (0.4) of a cubic centimetre of a five (5) per cent. solution of potassium chromate.

The prints are immersed in the above solution for fifteen to thirty minutes, and are then washed in two changes of the following:

Water.....one (1) litre
Ammonia (specific gravity = 0.880).....three (3) cubic centimetres

The prints are then washed in water and dried.

II. According to the second method above described, I use the following solutions:

SENSITIZING SOLUTION.

Water.....one hundred (100) cubic centimetres
Ferric citrate.....ten (10) grammes
Oxalic acid.....three (3) grammes
Silver nitrate..... three (3) grammes

After exposure to light the prints are immersed in

Water.....one (1) litre
Ammonia (spec. grav. = 0.880).....six (6) cubic centimetres
Sodium citrate..... .....twenty (20) grammes

They are then washed in the dilute ammonia described in the first method.

III. According to the third method above described, I use the following solutions:

SENSITIZING SOLUTION.

Water .....one hundred (100) cubic centimetres
Ferric oxalate. ...fifteen (15) grammes
Potassium oxalate.three (3) grammes
Silver nitrate.....three (3) grammes

After exposure to light, the prints which should have attained their full depth are washed in the following:

Water.....one hundred (100) cubic centimetres
Sodium citrate....three (3) grammes
Citric acid.....five tenths (0.5) of a gramme

They are then washed in the dilute ammonia and in water, and dried.

Having now particularly described and ascertained the nature of my said invention, and in what manner the same is to be performed, I wish it to be understood that I do not limit myself to the proportions above stated, but alter them in various ways with the tone or color required in the finished picture, and I claim:—1. The use of paper or other surfaces prepared with mixtures of ferric and silver salts as described above, to be used for the production of photographic images in silver along with the class of developing solutions already given, and particularly referred to in my second claim. 2. The use of developers as described in the above first and second methods in conjunction with paper prepared with ferric salts as above described. 3. The use of the sensitizing, developing, and washing solutions particularly stated above, and there set forth.

NOTES ON SOME NEW RAPID ORTHO-CHROMATIC COLLODIO-BROMIDE EMULSION PROCESSES.

[From the *Journal of the Photographic Society of India.*]

GELATINE dry-plates have now taken such a hold on the photographic world that it would be almost useless to expect any general return to collodion, whatever its advantages might be. For all ordinary purposes ready-made gelatine plates must remain the most convenient medium for the sensitive film. There are, however, many photographic operations in which certain qualities are required in the negative or transparency, which are far better obtainable with collodion than with gelatine, and this is the case with most of the copying processes used for the reproduction of drawings and works of art in line or half-tone. Here, in Calcutta, we are obliged to use the old wet collodion process for all our copying work in the Survey of India Office, and the same is the case in most of the establishments in other parts of the world working process blocks and other photo-mechanical processes for reproduction of line-work. Now, as some of you may know, the practice of the wet collodion process is attended with many inconveniences, in the way of nitrate of silver baths which are difficult to preserve in good order and keep one's fingers in a state of perpetual blackness, the drying of the film and other troubles, which may be all avoided in working an emulsion process. As collodion processes go, the wet process is fairly sensitive, and though far below gelatine in sensitiveness, it is, as a rule, much quicker than the ordinary dry collodion processes, and for this reason the latter have, so far as I know, not generally come into use in establishments like ours, where a large amount of copying work is done, and wet collodion has so far held its own.

I have often thought that the experience gained in making the highly sensitive gelatine emulsions might possibly be applied to the preparation of very sensitive collodio-bromide emulsions, and it has, in fact, already been done by Captain Abney and others; but with very little practical experience in emulsion making with collodion, one did not quite know what process would be likely to best answer for ordinary work.

When I was in Europe last year, I was told in Berlin of an orthochromatic collodion emulsion, prepared by Dr. E. Albert, of Munich, which was said to give very good results and to be very sensitive. So being afterwards in Munich I paid a visit to Dr. Albert, who very courteously showed me a good deal that was interesting, and I was specially impressed by the sight of his negatives of copies of paintings taken with his orthochromatic collodion emulsion. I have never before seen such fine negatives, full of the most brilliant soft gradation and detail, and of the beautiful violet-purple color of the best wet-collodion negatives which one misses so much in gelatine, and which indicates, moreover, an exceeding fineness of deposit. The process seemed a most valuable one, and I should have got some of the emulsion for trial, but was told that it would not keep in a hot climate. Dr. Albert's emulsion has been on sale in Europe for the last year or two, but little was known of the process of preparing it, except that the coloring solution contained one of the eosine dyes and some picrate of ammonia, the latter serving in place of a yellow screen.

Shortly after my return to Calcutta last November, I read in *Paris Photographe*, Mons. Nadar's excellent monthly, an extract from the *Correspondenz*, of a paper by Dr. A. Jonas, of Vienna, describing some experiments he had made, at Dr. Eder's suggestion, in preparing an emulsion similar to Dr. Albert's. It seemed to me worth trying these formulæ, and when I did so, I was quite surprised at the results obtained, and especially by the wonderful sensitiveness conferred on the emulsion by the addition of the strong picrated erythrosine-silver solution, so that the colored collodion emulsion was about as sensitive as ordinary gelatine dry plates. No such enormous rise in sensitiveness is noticeable in orthochromatising gelatine dry plates with weaker erythrosine-silver solutions,

Dr. Jonas' method of working, as given at length in the *Photographisches Correspondenz* for July, 1891, is briefly as follows:—

The employment of the silver and ammonia method of preparing the silver bromide emulsion, which is so successful with gelatine does not answer so well with collodion, because the free ammonia acts injuriously on the collodion. This difficulty is overcome in the following process by neutralizing the free ammonia with acetic acid, and, moreover, the emulsion so obtained is exceedingly fine in the grain, and creamy:—

SOLUTION I.

Ammonium bromide	64 grammes.
Distilled water	80 c.c.
Absolute alcohol	800 c.c.
Thick collodion, 4 per cent	1,500 c.c.
Glacial acetic acid	65 c c.

The ammonium bromide is first dissolved in the water with heat, then the alcohol, collodion and acetic acid are added in order.

For the collodion, I have used a mixture of equal parts of 4 per cent. solutions of Schering's celloidin and of a collodion made with Morson's pyroxyline, both in equal parts of ether and alcohol, the same as ordinarily made up in the office for copying maps, but thicker.

SOLUTION II.

Crystallized nitrate of silver	80 grammes
Distilled water	50 c.c.

The silver salt is dissolved in the water with heat, and then a strong solution of ammonia is added in small portions till the precipitate is redissolved (this takes about 72 to 75 c.c.). 800 c.c. of alcohol warmed to about 45 deg. c. (113 deg F.), are then added. This solution should remain clear and colorless. If it turns brown the alcohol is impure. Both solutions can be prepared in daylight.

J. Waterhouse.

(*To be continued.*)

The Editorial Table.

Bromide Paper, Instruction for Contact Printing and Enlarging, by Dr. E. A. Just. Translated by Walter E. Woodbury and H. S. Ward. London: Percy Lund & Co.

A most complete instruction book on this popular method of printing and enlarging. There is really nothing omitted worthy the attention of the bromide printer. Enlarging by day and by artifical light, the relations between exposure and development, as well as difficult methods of toning the bromide print are equally well treated.

We recommend this book to all the manufacturers of and dealers in bromide paper, and still more so to all bromide printers. They will all gain valuable information from it.

Jahrbuch für Photographie und Reproductions Technik für das Jahr, 1893. By Dr. Jos. Maria Eder. Halle o/S: Wilhelm Knapp.

Like its predecessors the present year book is divided into two parts, the first containing original contributions from renowned authors all over the world, and the second a review of the advances made in photography during the year past. The author with his extensive scientific and practical knowledge has in the present volume excelled all his former efforts, and made it the most instructive and interesting of its series.

"How to Make Photographs," containing a descriptive price list of Materials for the Amateur Photographer. New York: The Scovill & Adams Co.

This instructive little manual makes its reappearance in a new dress and after having been rearranged, much enlarged and improved. It contains descriptions of many new things to the photographer, among which we may mention the new Zeiss-Anastigmat Lenses, by Bausch & Lomb Optical Co., the Diaphragm Shutter, by tbe same opticians, the Velox Lens, plain felt backgrounds, the new Para-Amidophenol Developer, the Acme Automatic Kodak Counter, and several new publications. The book contains the usual practical instructions for making photographs and will be sent to any address, postpaid, on receipt of 10 cents.

Record of Photographic Patents.

473,753. Making relief plates by photography. Jacob Husnik, Prague, Austria, Hungary.

473,767. Process of improving oil paintings by photography. Ludwig Meyer, Berlin, Germany.

473,814. Candle-lamp for use in photographic darkrooms. Herbert A. Benham and William H. Tomson, London, England.

Queries and Answers.

248 LANCASTER wants to make bromide enlargements by artificial light, but cannot afford to pay for an electric plant. What other light is available?

248 *Answer.*—Why not resort to continuous magnesium light? It is just as effective as the electric arc and much cheaper in the end. Scovill & Adams Company sell a lamp constructed for this purpose and charged with a spool of magnesium ribbon for the moderate price of $8.50. Of course a condensing lens is necessary for that sort of light.

249 JOHN HALL.—What are the advantages of toning with chloride of gold and potassium? how is the salt prepared? what does it look like?

249 *Answer.*—Chloride of gold, $AuCl_3$, forms with KCl, NaCl, $CaCl_2$, $CaCl_2$, etc., crystallizable, double salts, tolerably permanent in moist atmosphere. Potassium auric chloride, $AuCl_3KCl+2H_2O$, forms crystals deflorescent in air. The substance is obtained by adding to a neutral or slightly acid solution of $AuCl_3$ an equivalent amount of KCl, and evaporating the solution sufficiently to form when cold a cuticle consisting of potassium auric chloride on the surface. In 136 parts of this salt are 100 parts of pure chloride of gold, or in 100 gm. of it are 47.52 gm. of metallic gold and 18.02 gm. of KCl.

Acid solutions of auric chloride form, according to Topsoë, a double salt with potassium chloride of the formula $2KCl, AuCl_3+H_2O$, containing in reality 50.98 per cent. Au and 19.29 per cent. of KCl.

The salt is in minute, bright yellow, 6-sided crystalline needles of the monoklinic system, permanent in air, but is deprived of all water by heating to 100 deg. C.

Chloride of gold and all its alkaline double salts are soluble in ether and alcohol. KCl and NaCl are not affected by these solvents, and therefore easily detected when present. (A. Lainer).

Potassium auric chloride has been repeatedly recommended as a toning agent by we can ascribe peculiar virtues or advantages over the sodium auric chloride.

250 H. P. N.—Can you give me a pointer or two on the production of half-tone cuts by means of etching on copper? How is the sensitive surface prepared and developed, and by what medium is etching done?

250 *Answer.*—The copper plate is furnished with a stratum of asphaltum or bichromatized gelatine or albumen. Our most successful workers in this process have peculiar methods of their own, not yet made public so far. Developing is done as on zinc, and etching by per-chloride of iron. Some claim to be able to do etching by one operation, others etch repeatedly in solutions of different concentrations. Copper and brass plates are occasionally etched with nitric acid, the fumes arising are, however, so obnoxious as to exclude that method almost entirely.

251 A. HOLT.—In what book can I find instruction how to use the burnisher?

251 *Answer.*—Lesson XII. of "Photographic Instructor," Third edition, Scovill & Adams Co., publishers, will give you the desired information.

THE PHOTOGRAPHIC TIMES.

AN ILLUSTRATED WEEKLY JOURNAL DEVOTED TO THE ART, SCIENCE AND ADVANCEMENT OF PHOTOGRAPHY.

Issued every Friday.

W. I. LINCOLN ADAMS, Editor.

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Tenth.—Because its circulation is not local or limited, as it extends throughout the entire United States, and goes to both professionals and amateurs.

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Twelfth.—Because its pages are double the ordinary quarto size.

Thirteenth.—Because its rates are lower than any photographic publication, considering the size of page and the extent of circulation.

Fourteenth.—Because your advertisement will receive the best of treatment on the part of the compositor, and will be advantageously placed in its pages.

Fifteenth.—Because all its advertisers are endorsed by the publishers as being worthy of patronage.

Sixteenth.—Because no advertisement in any way objectionable is admitted to its pages.

Seventeenth.—Because all the leading manufacturers of and dealers in photographic goods are represented in its advertising pages.

Eighteenth.—Because its advertisers receive more returns from ads. in it, than in any other photographic publication. (An unsolicited testimonial from a leading photographic dealer.)

Nineteenth.—Because it is not an experiment, having reached its 22d year.

Twentieth.—Because, in short, it will pay you to advertise in it.

Commercial Intelligence.

ALL THAT ARE LEFT.

The following circular was sent out by the publishers of "The American Annual of Photography," and below we give the replies which were received since last issue:

PHOTOGRAPHIC MERCHANTS: We take pleasure in advising you of our great success in selling "The Photographic Times Annual" for 1892. Though over 16,000 copies were printed, the entire edition has been exhausted. Orders, however, are continuing to come in, which we are now unable to fill and if you have any of the books remaining in stock, we shall take pleasure in advertising that fact in THE PHOTOGRAPHIC TIMES, free of charge, notifying those in search of the book where they may procure it.

Yours truly,
THE SCOVILL & ADAMS CO.
(Publication Department.)

New York, April 12, 1892.

E. J. PULLMAN, of Washington, has five copies on hand.

RIKER & DICKINSON, of 416 Sixth Avenue, report that they can fill orders for a few copies.

THE OBRIG CAMERA CO., New York: "We have have on hand only four copies, in cloth, of the Annual."

C. H. PIERCE & CO., of Springfield, Ohio, report two copies in paper covers.

REIMERS & KATZ, of Milwaukee, Wis., state that they have six copies on hand.

C. H. COLBY & CO., Ocala, Fla., have two copies left.

A. G. SPAULDING & BRO., of Chicago, have about fifteen copies on hand.

VALENTINE & CO., of Newark, N. J., write as follows: "We take pleasure in saying that we have sold double the number we expected to, and have only a few more left. It is a good book, and deserves the success it has, which is no small amount."

QUEEN & CO., of Philadelphia, report a "number" of the books left, which they shall be glad to dispose of at the regular prices.

H. L. ROBERTS & CO., of Philadelphia, report six copies left.

JAMES S. CUMMINGS, 106 North Charles Street, Baltimore, Md.: "We have in stock four paper covers, two library editions."

F. HENDRICKS & CO., of Syracuse, write that "We have on hand to-day only six paper covered 'Times Annuals' for 1892. Our sale has been larger this year than ever before."

BARKER & STARBIRD, of Boston, write: "We beg to say that out of a total of 325 copies we have but eight left. These we can dispose of easily to our local trade. We have beaten last year's sale by over one hundred copies."

WHAT IS THOUGHT OF THE PERFECTED BRADFISCH ARISTOTYPE PAPER.

"The best that I have ever had."—H. A. HOLDLAY, Waterbury, Ct.

"The paper is all I could wish."—J. W. SUDER, Scottsdale, Pa.

"I have given it a trial with different kinds of negatives, and it seems to me to be perfection * * * * we are fully satisfied with the B. & P."—JOHN W. WINDER, Bay Ridge, Brooklyn, N. Y.

"We find it far superior to anything we have used."—H. L. ROBERTS & Co., Philadelphia.

"It is everything that could be desired."—J. T. CRAFT, Scenery Hill, Pa.

"The paper is excellent."—R. M. WILSON, Chicago.

"I have tried a good many makes of Aristo, but this is superior to them all."—W. H. SNOOK, Aurora, Ills.

"We are delighted with it. With intelligent use it should be *the* paper, as it gives the most even prints of any we have used."—W. C. ROGERS, Boston.

"I have tried the B. & F. paper and got good results, lost but one out of 104 prints."—J. H. WINDISH, Oak Harbor, Ohio.

"It is just the paper I have been looking for, and I will use no other."—J. N. NICOLIN, Aurora, Iowa.

FOR 1893.

As so FEW of the "American Annual of Photography and Photographic Times Almanac" for 1892 are left in the hands of dealers [the publishers being entirely sold out], this issue will soon be at a premium, like the issue for "89," and this, though the edition of the book for "92" exceeded 16,000 copies.

Not only have advertisers commenced to secure space in the 1893 issue of the "American Annual of Photography," but the dealers have already begun to place their orders for that volume of the book.

ROBERT AUCOCK, of Utica, under date of April 18th, writes: "I wish to place order for fifty copies (have just six left), also to engage one-half page of advertising space in same."

W. C. CULLEN, of 62 William Street, New York, orders 100 copies of the 1893 issue, and takes one page of advertising space in same.

C. H. Loeber, of 111 Nassau Street, N. Y. City, places his order now for 500 copies of the book.

Others who have taken advertising space are as follows:

THE EASTMAN CO., nine pages.
THE NEW YORK PHOTOGRAVURE CO., three and a quarter pages.
F. GUTEKUNST, four pages.
SCHERING & GLATZ, two pages.
G. W. WILSON & CO., two pages.
ROCHESTER OPTICAL CO., two pages.
JOHN CARBUTT, two pages.
BRADFISCH & PIERCE, one page.
A. S. BARNES & CO., one page.
DOUGLASS & SHUEY CO., one page.
OTIS C. WHITE, one page.
W. C. CULLEN, one page.
HORGAY, ROBEY & CO., one page.
CHAS. BESELER, one page.
PROSCH MFG. CO., one page.
E. W. NEWCOMB & CO., one page.
H. A. HYATT, one page.
A. M. COLLINS MFG. CO., one page.
J. C. SOMERVILLE, one page.
BAUSCH & LOMB OPTICAL CO., one page.
GUNDLACH OPTICAL CO., one page.
MOSS ENGRAVING CO., one-half page.
WILSON-HOOD CHEYNEY CO., one-half page.
ROBERT AUCOCK, one-half page.
A. G. RAMSPERGER & CO., one-half page.
BUFFALO ARGENTIC PAPER CO., one-half page.
SCHULTZE PHOTO EQUIP. CO., one-half page.
H. B. SHELDON, JR., one-half page.
WILLIS & CLEMMENTS, one-quarter page.
REIMERS & KATZ, one-quarter page.
E. J. PULLMAN, one-quarter page.
HENRY D. MARKS, one-quarter page.
BROOKLYN CAMERA CO., one-quarter page.
SAMUEL W. BROWN & CO., one-quarter page.
PHYSICIANS' SUPPLY MFG. CO., one-quarter page.
T. H. MCCOLLIN & CO., one-quarter page.
CHAS. H. RUTHERFORD, one-quarter page.
GEO. M. BABB, one-quarter page.

Business Notices.

FOR SALE AT A BARGAIN. — 14 x 17 Extension Copying Camera, $15; Patent Lever Camera Stand, $8; Retouching Frame, new, $2.25; Position Chair, new, $4.50; Lightning Shutter, open, 4¾ in., $4.50; Dark-room black enameled cloth, $5. For further particulars apply to P. KRUMMEL,
Pittsburgh, S. S., Pa.

RAPID RECTILINEAR LENSES AT COST.—4 x 5, $5; 5x7, $12; 5x8, $7; 6½x8½, $8; 8x10, $12; 10x12, $18; 11x14, $24. Write for price list.
W. P. BUCHANAN, Importer, Philadelphia.

BACK NUMBERS OF SUN AND SHADE, including Nos. 3, 10, 11 and later issues, in perfect condition, 25 cents each. Regular price is 40 cents, and the earlier numbers are at a premium. THE PHOTOGRAPHIC TIMES PUBLISHING ASSOCIATION.

FOR RENT —Gallery in a town of 5,000; best chance in Southwest Virginia; plenty of work at good prices, and large near-by trade. Address
M. KWASS, Pocahontas, Va.

WANTED.—A second-hand Extra Rapid Euryscope Lens 10 x 12, and also a Rapid Euryscope, 6th series, 6½ x 8½. State lowest cash price. Address
C. H. MILLER, 3400 N. 19th St.,
Philadelphia, Pa.

FOR SALE.—Gallery on Pennsylvania Avenue, Washington, D. C.; complete outfit; large number of negatives; only for cash. Address, care of Mr. W. B. Brittain,
CARRIER No. 44, City P. O.

FELT BACKGROUNDS, $1.50 per yard; a 6 ft. x 6 ft. ground only $3, by mail $3.35.
THE SCOVILL & ADAMS CO.

PHOTOGRAPHIC BROKERAGE.—Established especially to furnish carefully selected outfits of any make or grade to those living at a distance. Address
C. M. BROCKWAY, 33 Worth St., New York.

THE MANUFACTURER'S OPINION.

During six (6) yoars' business acquaintance with Mr. C. M. Brockway, we have never known him to select any but the most desirable goods.
THE SCOVILL & ADAMS CO.

FOR LADIES AND TRAVELERS.—No dark-room needed. The new Daylight Kodak Cameras can be reloaded in ordinary light. Larger sizes at less price than former Kodaks. Mail orders promptly filled by
C. M. BROCKWAY, 33 Worth St., New York.

THE UNDERSIGNED has a few 6x5 Dallmeyer Rapid Rectilinear Lenses which he will sell for 20 per cent. from list prices. These lenses are a late importation and are all warranted. Address "TOURIST,"
care The Scovill & Adams Co.

THE FINEST Platinotype Solar Enlargements and contact prints, in black and sepia, are made by
THE PLATINOTYPE CO.,
39 South 10th St., Philadelphia.
Send for price lists.

FLASH-LIGHTS AND HOW TO TAKE THEM! A complete treatise on Flash-Light work. Fully illustrated by Louis Clarence Bennett. Price, 50 cents, Order a copy now from THE SCOVILL & ADAMS CO.

YOU SHOULD KNOW about our entirely new line of elegant, delicate high class interiors and exteriors, white plastic continuous set pieces; quaint and novel ideas beautifully carried out, and right up to, if not a little ahead of the times. If you ask your dealer, traveler, or our own, or write to either, or to us, you will be sure to receive courteous attention. TRY IT!
LAFAYETTE W. SEAVEY,
Studio, Walton Ave., Cor. Cheever Place, N.Y.

LANTERN-SLIDES AND HOW TO MAKE THEM, by A. R. DRESSER.—A new book, very complete and thoroughly practical. Only 25 cents. Sent postpaid on receipt of price by THE SCOVILL & ADAMS CO.

A SPLENDID OPPORTUNITY FOR A FIRST-CLASS PHOTOGRAPHER.—In the large and beautiful city of Guadalajara, with 120,000 inhabitants—the second city in Mexico. For sale or to rent—after having made its owner a fortune—a photographic gallery beautifully situated in the centre of the city, completely furnished with all modern appliances. To be sold at cost price, $4,000, or for rent at $150 per month, including living apartments. First-class custom, on the basis of $12 for Imperials. For further particulars, address Sr. Lic. J. MIGUEL G. HERMOSILLO, Apartado 12, Guadalajara; or O. DE LA MORA, 2da San Francisco, 4, Fotógrafo, Mexico City.

THE finest-fitted Dark-Rooms in the United States are open for the accommodation of Amateurs, at 122 W. 36th Street. DARLING, Photographer.

THE ELDORADO BENCH AND WALL COMBINATION makes eight different combinations, every one of which is effective and artistic. Just introduced by THE SCOVILL & ADAMS CO. Price $20.00.

"THE PHOTOGRAPHERS' BOOK OF PRACTICAL FORMULÆ."—In order to make way for the SECOND EDITION of this popular book we make the following prices on those now in stock: Paper covers, 30 cents each; cloth, 60 cents each. Never before has a book of such great value been offered for so little money.
R. H. MORAN,
396 Broome Street, New York.

SEND FOR LIST of new "M. & V." Lenses to THE SCOVILL & ADAMS CO.

A SURE WAY TO PREVENT BLISTERS.—Use Haworth's Sensitized Paper. It won't blister. Spalding has it, so have Obrig Camera Co., and Z. T. Benson.
JOHN HAWORTH, Manufacturer, Phila.

NO FUMING, NO BLISTERS.—Experiment with all the "papers" advertised, and learn. But when you want to make choice, spotless prints use WISSAHICKON SENSITIZED ALBUMEN PAPER. Tone it in compound bath and squeegee on ferro plate, if you like. Send 2 cent stamp for 4x5 sample to JOHN HAWORTH,
641 Arch Street, Philadelphia.

FOR SALE.—Half interest in a well-established, good paying photographic stock business in New York City. Having other business cause for selling. Address for terms, etc.,
"STOCK," care of THE PHOTOGRAPHIC TIMES.

GRIT VARNISH.—The best retouching medium in the market; 6-ounce bottle, 40 cts.
THE SCOVILL & ADAMS CO.

THE CHAUTAUQUA SCHOOL OF PHOTOGRAPHY.

Several ladies and gentlemen, amateur photographers not connected with this institution, have expressed a desire to contribute specimens of their skill to the annual School Exhibtion held on the Assembly Grounds in July and August. In fact, several such have already sent exhibits.

We shall receive with pleasure such photographs, and invite all amateurs and professionals to assist us in making the Chautauqua School Exhibition of 1893 superior to any of its predecessors.

For particulars apply to

CHARLES EHRMANN,
Instructor C. S. P.

423 Broome St., New York; after July 1st to Chautauqua Assembly Grounds.

LANGILL. 10 East 14th Street, makes all kinds of outdoor negatives. Portrait photographers will do well to consult him when such is required. First prize for Architectural photographs, P. A. of A.

S. P. C. EIKOQUINOL DEVELOPER.—This "ne plus ultra" developer for timed and instantaneous exposures, lantern slides and all other kinds of transparencies, photo-mechanical work and bromide paper prints is now in stock and for sale at 35 cents per bottle of 8 ounces. No other developer is now used by the members of Chautauqua School of Photography; no other has attained to equally fine results.

THE SCOVILL & ADAMS CO.,
423 Broome Street, New York.

WANTED.—No. 416, September 6, 1889, issue of THE PHOTOGRAPHIC TIMES. Will pay fifty cents for this copy if in good condition.

A. L. PHILLIPS, Jamestown, N. Y.

PARA-AMIDOPHENOL HYDROCHLORATE.

THE DEVELOPING AGENT OF THE FUTURE.

With para-amidophenol there is no staining of the film, as with eikonogen and hydrochinon when development is prolonged, absolute transparency and opacity is secured, and the time of exposure is reduced about 30 per cent. without injury to half-tones and middle-tints.

FORMULA FOR DEVELOPER.

Para-amidophenol (pure)	100 grains
Sodium sulphite (crystals)	3 ounces
Potassium carbonate	1½ ounces
Water	32 ounces

FOR USE.—Take 1 ounce of the above solution and from 2 to 4 ounces of water, according to the length of exposure.

The stronger the solution the greater the intensity of the resulting negative; the more diluted the solution the greater softness and more detail.

PURE PARA-AMIDOPHENOL HYDROCHLORATE,
IN ONE-HALF OUNCE BOTTLES,
$1 per bottle.
THE SCOVILL & ADAMS CO.

PORTE-FEUILLE CARDS.

The cards for these Albums may be quickly and securely attached to the guards after the prints are mounted and burnished.

Price-list, including 25 sheets of Collins' best quality White Cards:

No. 2, 10x12 for 6½x 8½ Photographs	$2 00
" 3, 11x14 for 8 x10 "	2 25

Price-list, including 25 sheets of Collins' White Muslin-Back Cards:

No. 5, 10x12 for 6½x 8½ Photographs	$2 00
" 6, 11x14 for 8 x10 "	2 25

THE SCOVILL & ADAMS CO.,
423 Broome Street, New York.

A FIVE-DOLLAR CAMERA.

Having purchased the entire production of Frank McLaughlin's New England Hawk Hand-Cameras from the manufacturers, we are now prepared to place this instrument on the market at the remarkably low price of $5 each. The reputation of this camera is beyond question; it will make pictures 4 x 5 size, either snap-shot or on a tripod, equal to the best. Satisfaction guaranteed or money refunded.

THE SCOVILL & ADAMS CO.

Employment Offered and Wanted.

SITUATIONS OFFERED.

A good operator and negative retoucher wanted. Send specimens of work, and state salary expected. Address B. F. Cooke, Norwich, N. Y.

A first-class printer, toner and retoucher, one that is able to assist under the skylight and in the dark-room will find a good situation by applying to Adt & Brothers, 56 Bank Street, Waterbury, Conn.

SITUATIONS WANTED.

A first-class printer and toner is open for engagement; ten years' experience in best galleries. Address Gilgannon, 146 E. 17th Street, New York City.

Position as operator and retoucher; good all-round man; 25 years' experience. Box 333, Deposit, N. Y.

A young amateur, of good habits and single, desires a situation in gallery where he can work under instructions. Address Fred. W. Knapp, Thomson, Illinois.

A situation as operator or retoucher; has long experience, and good reference. Address Newcomb, 15 Horatio Street, New York City.

By a first-class wet plate operrtor, also A No. 1 printer, J. H. Hamill, 2518 Sartain Street, Philadelphia, Pa.

Negative retoucher for the trade and amateurs; first-class work promptly executed. S. Raymond, 1162 Broadway, New York.

Young lady desires position in gallery as assistant retoucher; willing to wait on reception room. Address Miss B. V. H., care Carrier 53, Newark, N. J.

By young man, twenty-one years' old, position as operator, retoucher or printer. Address T. S., Box 388, Berea, Ohio.

Young man wishes to have a situation in first-class gallery, where he would have a chance to learn the business thoroughly. Boston and vicinity preferred. Address W. T. Weston, 234 Princeton St., East Boston, Mass.

A first-class operator, well experienced under the skylight and in the dark-room, and for a long time in one of New York's leading ateliers, desires to make a change. New York or Chicago preferred; best of references. Premiums awarded by the Buffalo and Chicago Conventions of P. A. of A. Address for thirty days, 'Operator," care of Prof. Charles Ehrmann, THE PHOTOGRAPHIC TIMES.

Solid Trains between New York and Chicago

VIA CHAUTAUQUA LAKE OR NIAGARA FALLS.

An Enchanting Panorama of Mountains, Forests and Streams.

The Delaware Division of the "Erie," between Port Jervis and Susquehanna, is a paradise for Amateur Photographers.

D. I. ROBERTS, Gen'l Passenger Agent.

CONTINUOUS BACKGROUNDS

Shown in Photographs with Subjects, in our new Sample Book.

Also the best and most complete line of accessories made.

J. W. BRYANT CO.,
La Porte, Ind., U.S.A.

BLUE PAPER.

A *good* article in this line is always hard to find. The *package* paper is variable and not to be relied upon. The motive of this little "Ad." is to tell you of our *special* Blue Paper. It is made fresh every day, on imported paper; is 50 per cent. cheaper than other papers, and withal is the best. Per yard (27 inches wide), cut to any size, 25c. Send 5c. for sample. THE OBRIG CAMERA CO.,
163 Broadway, New York.

BECK'S NEW SERIES "B" LENSES.

"Rapid Rectilinear," "Mid-Angle" and "Wide Angle have all the wonderful properties of the well-known Series A, at prices as low as those of common lenses.

BECK'S NEW SERIES "B" LENSES.

"Rapid Rectilinear," "Mid-Angle" and "Wide-Angle." The cheapest first-class Lens ever produced.

Prices of Rapid Rectilinear Lenses, Series B:

3¼x4¼	$18 00	5 x8	$22 50
4 x5	18 75	6½x8½	34 00
8x10	$44 00		

BECK'S NEW SERIES "B" LENSES

Are made of the same glass and on the same curves as their other lenses, but are in less expensive mounts; the quality therefore is perfect, the price greatly reduced. Send for list.

THE NEW KODAKS.

WE HAVE THEM!! $6.00 TO $25.00.

They can be loaded in the *daylight*, and we give full and careful personal instructions gratis. We develop, print and mount in albums at Eastman's prices. Only *first-class* work turned out. THE OBRIG CAMERA CO.
163 Broadway, New York.

WANTED.—Vols. 1, 2, 4, 5, 7, 8, 10, 12, 13, 17, 18 and 19 of THE PHOTOGRAPHIC TIMES, bound or unbound. THE PHOTOGRAPHIC TIMES PUBLISHING ASSOCIATION.

ARTISTIC LANDSCAPES FROM NATURE,
IN PHOTOGRAVURE,
FROM PHOTOGRAPHIC NEGATIVES

Representing the Four Seasons.

Printed on extra heavy plate paper, 11x14 *inches in size*

SUITABLE FOR FRAMING.

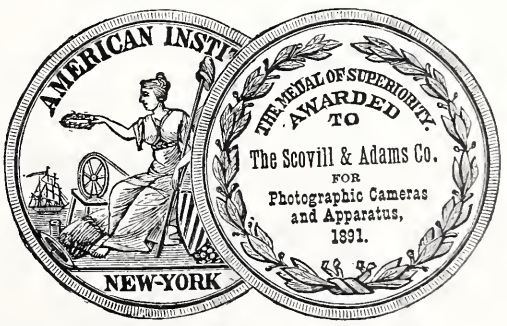
What Mr. George Inness, America's greatest landscape painter, says of these Photogravures:—"*They are very charming, and should prove extremely useful in the development of the landscape art of our country.*"

Price, 50 Cents each.
The Set of Four, $1.50.

Sent postpaid on receipt of price by

THE MONTCLAIR PHOTOGRAVURE PUBLISHING CO.,
49 PARK STREET, MONTCLAIR, N. J.

The Special Bronze Medal of Superiority, awarded by the American Institute to The Scovill & Adams Co.



for photographic cameras and apparatus, 1891.

THE PLATINOTYPE.

(PATENTED.)

Photographers can increase their business during the holidays by advocating the Platinotype.

Send 30 cents for a specimen print, portrait or landscape, on our new heavy India Tint Mounts.

WILLIS & CLEMENTS, Patentees,
39 South 10th St. Philadelphia.



"SIMPLEX" CAMERA STAND.

Cheapest and Best ever made.

No heavy weights or springs connected with its structure. A Camera weighing 100 lbs. can be elevated with as much ease as one weighing only 20 lbs. For sale by all Photographic Supply Houses. For catalogue, address

BLAKESLEE, STAHL MFG. CO., Quincy, Ill.

100

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OF

THE PHOTOGRAPHIC TIMES

Published between 1873 and 1884, each volume covering one year, bound in cloth with gilt stamp, are offered for sale at ONE DOLLAR A VOLUME, express charges to be paid by purchaser. Address The Photographic Times Publishing Association, 423 Broome Street, New York.

THE CHAUTAUQUA

School of Photography.

The term of the local class 1891-92 closes on Saturday, April 30th.

The practising class will open on the Assembly Grounds on or before July 1st, and will remain in session till the first week in September.

Subjects of Instruction.—The modern gelatine processes in all their bearings, mainly orthochromatic methods by timed and instantaneous exposures.

Daily practice in studio, field and laboratory.

Printing Methods. — Albumen, Matt-Surface Paper, Chloride of Silver, Gelatine and Collodion, Bromide of Silver and Kallitype paper.

Especial attention will be paid to the making of lantern slides.

TUITION FEES.

For one course of ten lessons	$5 00
For one-half course of five lessons	3 00
Special lessons	1 00

Independent of photographic materials and books.

Advanced students will please to bring with them Camera, Lens, Plate-holders and Tripods. Utensils are furnished by the school.

Beginners may work with the apparatus of the school, without extra charge.

The Corresponding Class may be joined at any time.

For particulars apply to

PROF. CHAS. EHRMANN,
423 Broome St., New York.

And after June 24th,
CHAUTAUQUA ASSEMBLY GROUNDS, N. Y.

$1.00 A DOZEN

For Cabinets is not profitable to any Photographer, yet how many will persist in trying to compete with his neighbor, forgetting that quality not quantity pays best.

THE PHOTO-AMERICAN 12 TIMES A YEAR

Gives you quality and quantity at a fair price. The magazine is the best illustrated of any in our line. On receipt of 10 cents in stamps we will send you a sample copy. Contains particulars about the

$100.00 Cash Prize Contest.

CHAS. H. LOEBER, 111 Nassau St., N.Y.

PHOTOGRAPHIC DIRECTORY.

A NEW CATALOGUE

Of PHOTOGRAPHIC GOODS, entirely complete and fully illustrated, will shortly be issued by

THE SCOVILL & ADAMS CO.

F. D. LANIER WALKER,

AMATEUR PHOTOGRAPHIC SUPPLIES.

18 John Street, New York City.

Successor to C. L. LITTLEWOOD & Co.

JOHN H. DALL,

PHOTOGRAPHIC SUPPLIES,

618 and 620 Clay Street,

Established in 1850. SAN FRANCISCO, CAL.

R. M. Davis. DENVER.

The only EXCLUSIVE Photo Stock House between the Missouri River and the Pacific Coast.

"HOW TO MAKE PHOTOGRAPHS."

Containing a descriptive Price List of all goods pertaining to Photography, sent free to any address on application to

THE SCOVILL & ADAMS CO.

Mail us 75 CENTS and we will send you by return post our No. 2 FLASH LAMP with magnesium, bulb and tubing all ready for use.

$1.50 WILL, in the same manner, purchase our No. 1 Lamp. The only satisfactory Flash-light apparatus in existence.

QUEEN & Co., Phila.

THE SCOVILL & ADAMS CO.,

Successors to

Photographic Department SCOVILL MANUF'G CO.

PHOTOGRAPHIC MATERIALS.

W. IRVING ADAMS, Pres't.
H. LITTLEJOHN, Sec'y.

Office and Salesrooms:
423 Broome Street, New York.

WHEN BUYING Photographic Cameras, be sure if you would have the best, that they are made by the AMERICAN OPTICAL COMPANY, New York, and are stamped on the front board for lens and frame for ground glass—"American Optical Co., New York.

GOVAN & CRAMPTON,

Successors to MINOTT M. GOVAN,

DEALERS IN PHOTOGRAPHIC SUPPLIES,

No. 5 Clinton Place, New York.

(Three doors from Broadway.)

FULLY ILLUSTRATED Catalogue and Price List mailed on application.

CARBUTT'S

EIKO-CUM-HYDRO DEVELOPER.

FOR SALE BY ALL DEALERS.

PANTAGRAPH LENSES,

QUEEN & CO., Phila.

PHOTOGRAPHIC BOOKS.

Send for the Scovill Catalogue of Photographic Books and Publications.
A new edition now ready.

PUBLICATION DEPARTMENT, THE SCOVILL & ADAMS CO.

This space for sale,

$1.50 per insertion.

Write for particulars.

J. S. LOPEZ & CO.

O'Reilly 92, Apartado 213, Havana, Cuba.

Importers of Goods for Photographers, Engravers and Painters.

Editors of the "PHOTOGRAPHIC BULLETIN."

REFERENCES IN NEW YORK, THE SCOVILL & ADAMS CO.

FRANCAIS LENSES,

QUEEN & CO., Phila.

PHOTOGRAPHIC SUPPLIES.

TUCKER & BUTTS,

37 and 39 Court Street,

BUFFALO, N. Y.

CARBUTT'S ORTHOCHROMATIC
PLATES AND CELLULOID FILMS

Still Ahead: Read what is said of this Season's Work.

MONON ROUTE.

W. H. McDOEL, Gen. Manager.
JAMES BARKER, Gen. Pass. Agent.

PASSENGER DEPARTMENT,
MONON BLOCK,
CHICAGO, April 7, 1892.

JOHN CARBUTT, ESQ.,
WAYNE JUNCTION, PHILADELPHIA.

MY DEAR SIR:—I have just returned from a long trip to the South, visiting the principal points of interest in Florida, and taking a run to Cuba. I took with me your **ORTHOCHROMATIC FILMS**, and had most wonderful success in getting views of noted spots. To say I am delighted but half expresses it. My trip took a month; making most of the journey in a private car I was enabled to rush round from spot to spot in a way which would not have been convenient under other circumstances, and, indeed, at the time being I hardly realized what I was doing, but now I am home making prints at spare moments; I am enjoying the trip over again, rendered possible by the camera.

Very truly, JAMES BARKER.

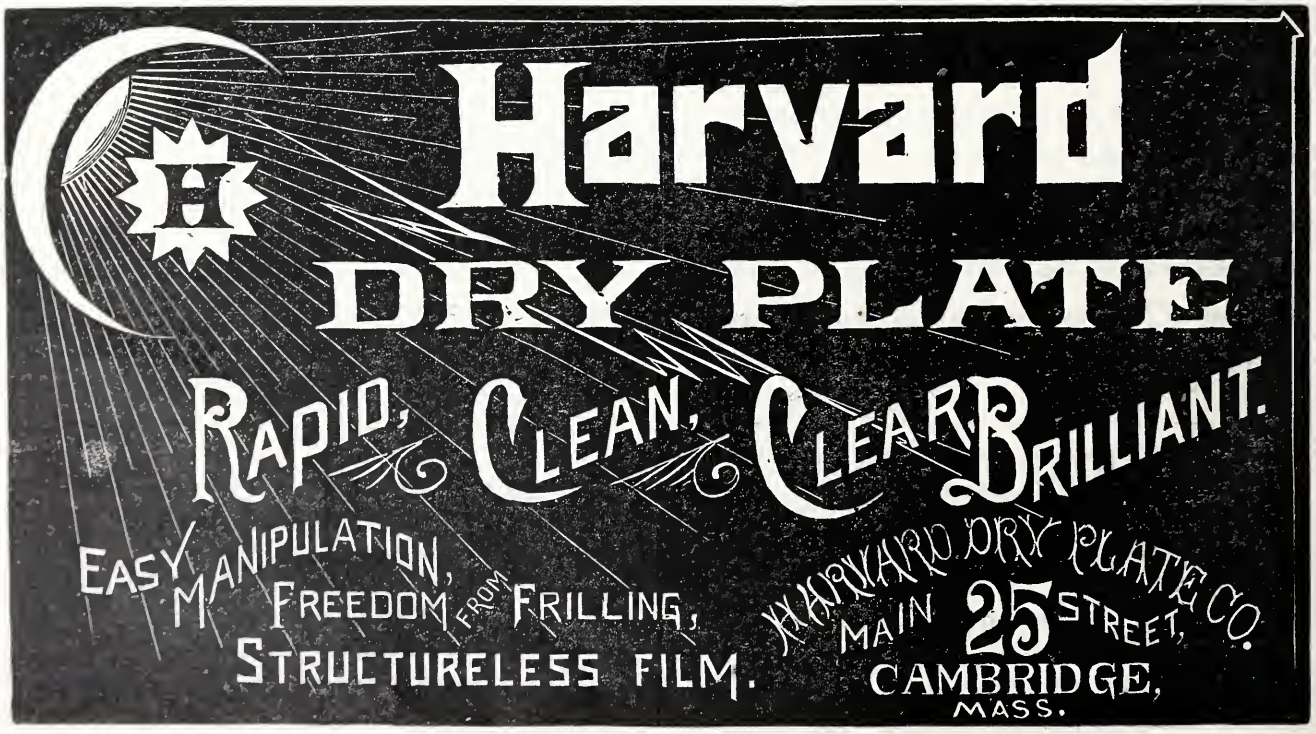
All contemplating a summer tour should place their orders with dealers early, to avoid the season's rush.
Carbutt's Dry Plates and Flexible Films are to be obtained from all dealers in photo materials. Send to factory for reduced Price List and list of brands.

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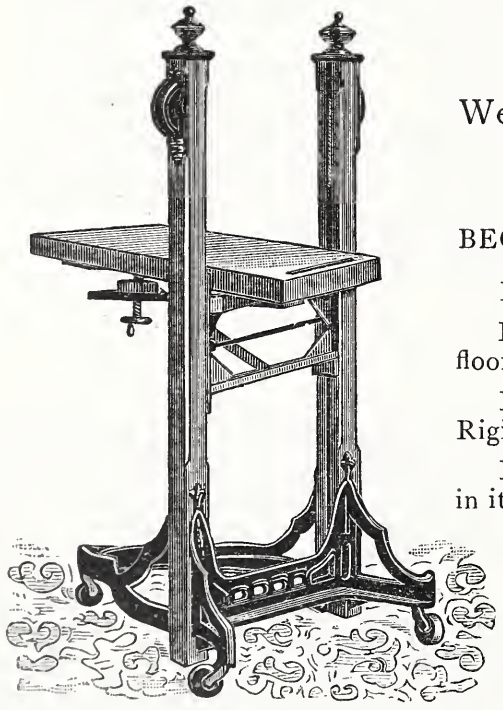
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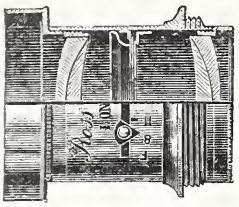
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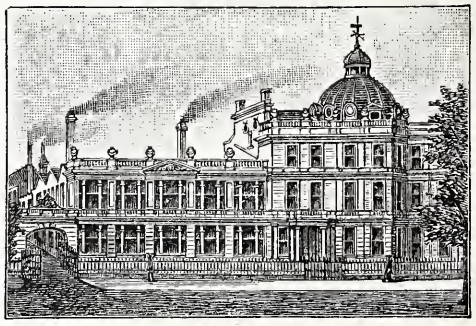
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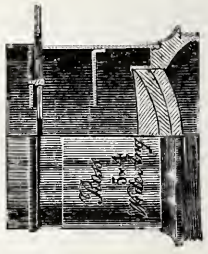
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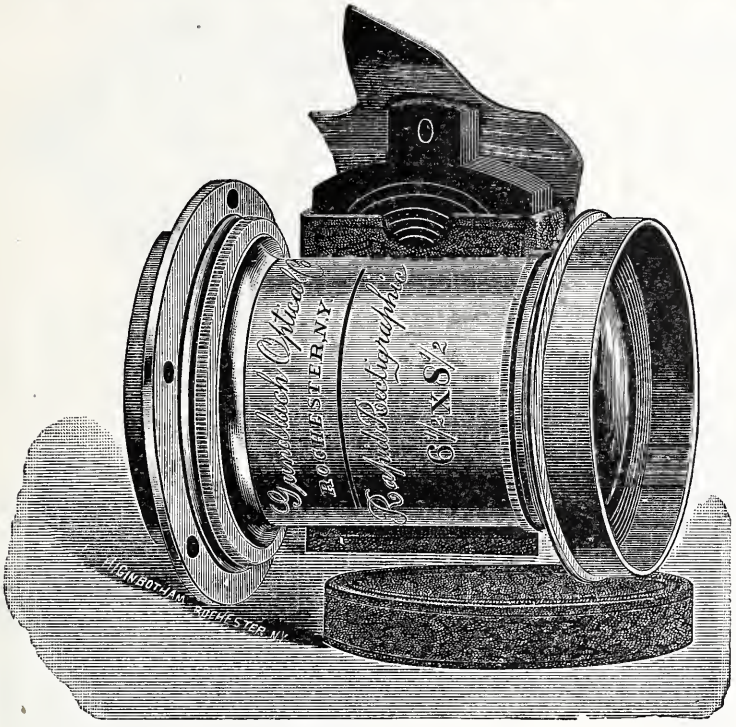
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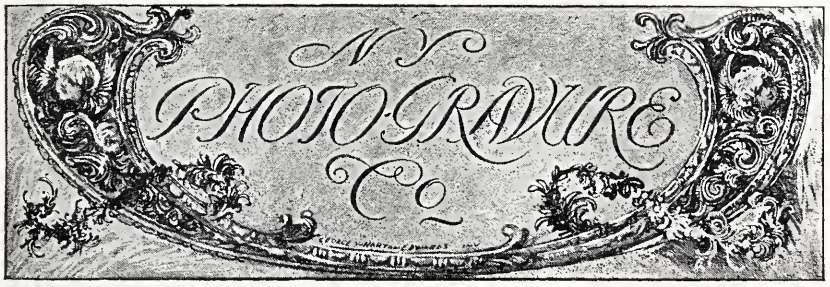
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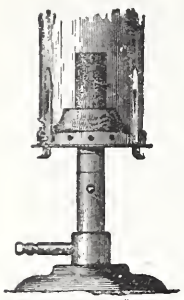
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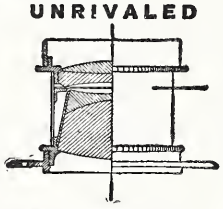
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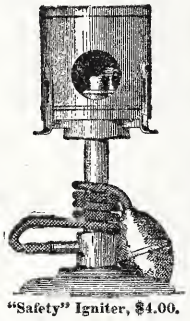
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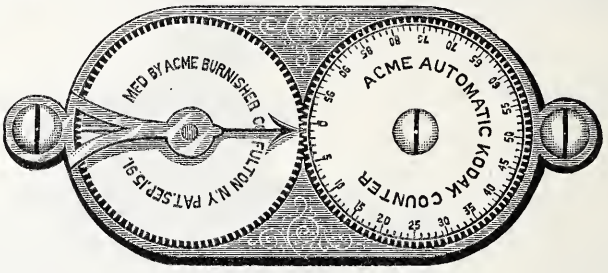
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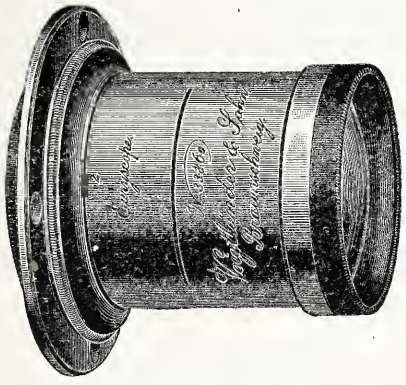
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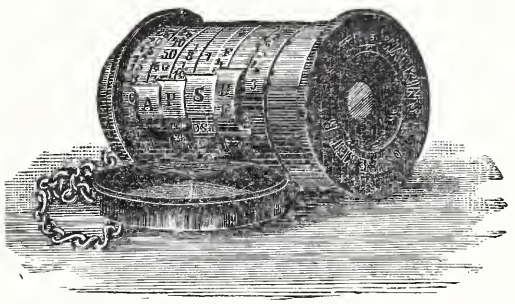
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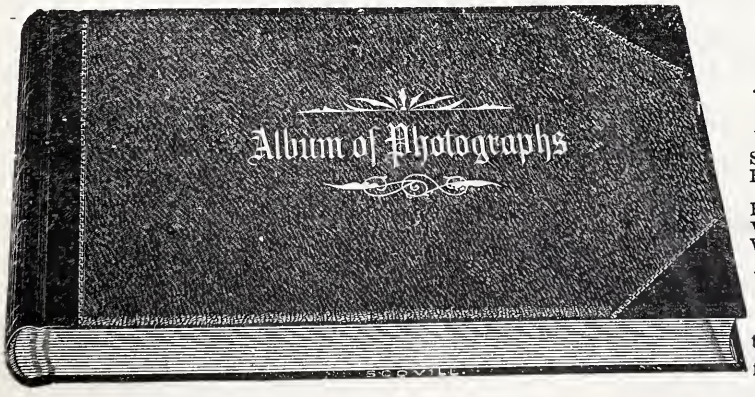
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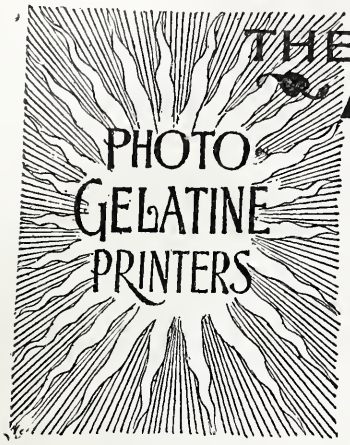
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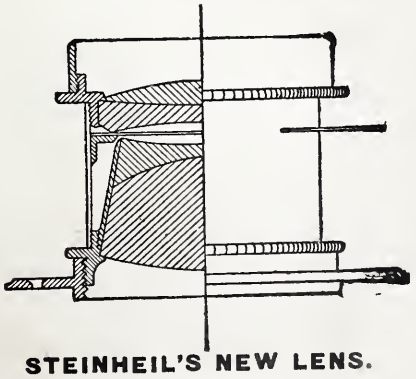
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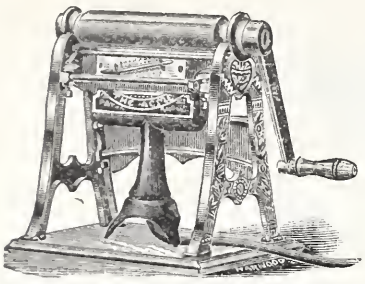
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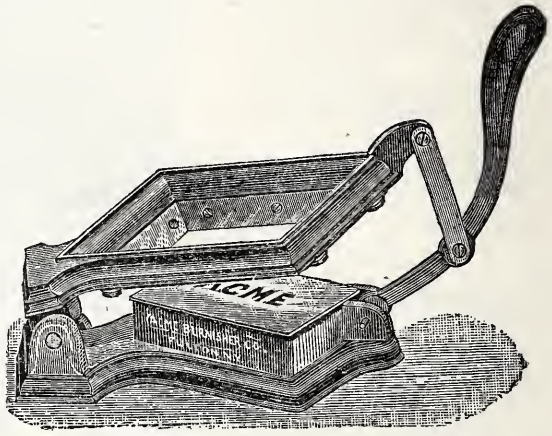
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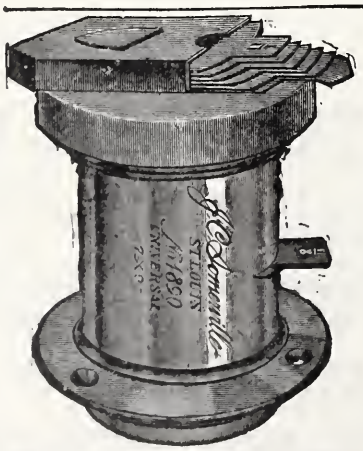
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LITTLE "GREASERS"

THE PHOTOGRAPHIC TIMES.

VOL. XXII. MAY 13, 1892. No. 556.

LITTLE "GREASERS."

THE accompanying picture of four little half-breed Mexicans was photographed by Mr. George M. Allen, of G. M. Allen & Company, on one of his photographic trips. Concerning the picture Mr. Allen writes as follows:

"Nearly opposite the San Gabriel Mission was this unique adobe dwelling, whose wall furnishes a background to the group, and being attracted by the picturesqueness of the little children playing about, I asked them to pose for me. None of them understanding the language of the country in which they had been born and brought up, it was necessary to call the father of the 'Greaser' quartette into use as interpreter, and to make the picture more characteristic the grouping (?) was left to him.

"He at first deprecated taking the picture as the subjects had not on their 'best clothes,' but the artist explained that little irregularities of costume did not show in a photograph, and prevailing, made the exposure with the accompaniment of the hackneyed 'watch the box and you will see the little birdie come out,' duly translated into Spanish by the doting father."

The plate is reproduced by the enterprising Company of which Mr. Allen is the head. It is a "half-tone."

ANALYSIS OF WATER.

THE purity of water has a great importance for the preparation of chemicals, and, therefore, but to a less degree, for compounding photo-sensitive preparations and the various uses for which water is employed in photo-manipulations.

Lately, we have been asked how the impurities can be detected. This as some other questions of a technical character we cannot satisfactorily answer in "Queries and Answers;" and for this reason we did not answer our correspondent in the last number of THE TIMES. We do it now in this editorial article.

The following are the reagents and their action to detect the most common impurities dissolved in water:

Ammonium oxalate, forms a precipitate with the calcareous salts.

Hydrosulphuric acid, precipitates the metals proper, iron, etc.

Barium chlorate, precipitates the sulphates.

Silver nitrate, forms a white precipitate indicating the presence of chlorides. Similar precipitates are also thrown down if the water contains salts of calcium, but the test for these is: ammonium oxalate, as said above, moreover the silver carbonates are soluble in nitric acid.

Lime water, forms a precipitate with carbonic acid, the precipitate being soluble in this acid; lime water should be added in excess.

The presence of organic matters is detected by boiling the water with a little gold chloride. If any organic matter is present the gold is reduced and the water turns brown.

Well distilled water should leave no residue when evaporated on a platinum or glass plate.

Water distilled in the ordinary manner, although pure for the uses of the laboratory, contains, however, traces of organic matters and often ammoniacal salts. By adding to it a little potassa and potassium permanganate and re-distilling, the water can be considered as chemically pure; it will form no precipitate with reagents.

Water, pure for photographic purposes, can be prepared by dissolving 35 grains of silver nitrate in two gallons of soft water and exposing the solution to the sun's light for one hour or two, until it turns deep-red brown, then adding 15 grains of common salt dissolved in a little water, when after two or three days' isolation the water will be clarified, free from organic matters and objectionable salts. After filtration the water contains, however, a very small excess of silver nitrate. If it is objectionable one can add 10 grains of salt and the water filtered again will then contain alkaline nitrates, and an infinitesimal quantity of sodium chloride which can have no injurious effect in the preparation of photographic compounds and in many other uses.

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THE FIFTH ANNUAL JOINT EXHIBITION AT BOSTON, MAY 2–7.

FIRST NOTICE.

IN the series of Joint Exhibitions, as arranged for by the New York, Philadelphia and Boston societies, the exhibition just closed is the second that has been held in Boston, under the auspices of the Boston Camera Club. It is no disparagement to other exhibitions to say that this last one ranks high in comparison; indeed, it is an evidence that the purposes in view when the Joint Exhibition scheme was inaugurated, and the expectations of those who were most active in advocating the arrangement, have been justified by the results; in other words, that these events, annual in fact, but only triennial so far as the responsibility of each club for the details is concerned, have perceptibly elevated the standards of taste and the quality of work among the membership and the amateur public generally.

This fifth exhibition was a distinct advance on that of three years ago, held in the same place, both in numbers and quality. There were shown about 1,300 prints in 660 frames, 136 slides, and 70 transparencies, the work of 115 exhibitors. Of this number of exhibitors 32 were members of the Boston Camera Club, 22 of the Society of Amateur Photographers of New York, 10 of the Photographic Society of Philadelphia.

The Boston organization is fortunate in the friendliness of the Art Club, which puts at its service, without charge, the fine galleries of the club building. This year the space was increased by two additional rooms, which enabled the exhibits to be better shown, and with greater comfort to the public. The attendance was large, having reached a total of 3,000 on the fourth evening, the press comments being very favorable.

The Board of Judges, consisting of Messrs. I. M. Gaugengigl, F. P. Vinton, and C. Howard Walker, announced their awards as follows, each award being given for the entire exhibit of the exhibitor:

Medals to Mr. Francis Blake, of Auburndale, Mass.; Mr. William Sumner Briggs, of Boston, Mass.; Mr. Arthur R. Dresser, of Kent, England; Mr. Hamilton Emmons, of London, England; Mr. Benjamin Kimball, of Boston, Mass.; Mr. J. Prince Loud, of Boston, Mass.; Mr. George M. Morgan, of Boston, Mass.; Mr. Charles R. Pancoast, of Philadelphia, Pa.; Mr. Lyddell Sawyer, of Newcastle, England; Mr. Alfred Stieglitz, of New York, N. Y.; Mr F. Dundas Todd, of Edinburgh, Scotland; Mr. Clement Williams, of Halifax, England.

Diplomas to Mr. John W. Alexander, of Yonkers, N. Y.; Mr. Henry W. Belknap, of Boston, Mass.; Mr. Charles I. Berg, of New York, N. Y.; Mr. James L. Breese, of New York, N. Y; Mr. John G. Bullock, of Philadelphia, Pa.; Miss Emilie V. Clarkson, of New York, N. Y.; Mr. W. S. Clow, of Philadelphia, Pa.; Miss Emma L. Coleman, of Boston, Mass.; Mr. C. Court Cole, of Oxford, England; Mr. Chas. H. Currier, of Boston, Mass.; Mr. William H. Dodge, of Lowell, Mass.; Mr. John E. Dumont, of Rochester, N. Y.; Mr. O. A. Eames, of Boston, Mass.; Mr. George H. Eaton, of Boston, Mass.; Miss Sarah J. Eddy, of Providence, R. I.; Mr. I. W. Evans, of Wolverhampton, England; Mr. William A. Fraser, of New York, N. Y.; Mr. Wilfred A. French, of Boston, Mass.; Mr. H. M. Grisdale, of New York, N. Y.; Mr. Martin J. Harding of Shrewsbury, England; Mr. H. A. Latimer, of Boston, Mass.; Mr. John C. Lee, of Boston, Mass.; Mr. J. S. Mason, of Boston, Mass.; Mr. Clarence B. Moore, of Philadelphia, Pa.; Mr. Geo. A. Nelson, of Lowell, Mass.; Mr. Robert S. Redfield, of Philadelphia, Pa.; Mr. Edward T. Sherman, of Yonkers, N. Y.; Miss Elizabeth Almy Slade, of New York, N. Y.; Mr. John L. Stettinius, of Cincinnati, O.; Mr. W. O. Witherell, of Boston, Mass.; Mrs. James Osborne Wright, of New York, N. Y.

Of the forty-three awards five medals and nine diplomas went to the Boston Club; one medal and five diplomas to the New York Society; one medal and three diplomas to the Philadelphia Society; five medals and three diplomas to foreign exhibitors.

We have expressed the opinion that the exhibition ranked high in comparison with its predecessors in the series; in regard to the standards of merit applied to their own work, as well as that of the other exhibitors, the Committee have taken a very advanced position, which can best be stated in the language of the "Preface" to the Catalogue, written by Mr. Benjamin Kimball, which we quote in full:

"The last generation has been notable for a wonderful advance in the discovery of a new process and appliances in the art of photography, and so rapidly has step followed step that there has not been time for the full development of its possibilities, particularly in the direction of beauty or truth of pictorial representation. This wealth of material and method has in a degree justified the opinion hitherto common among artists that photography is little more than a process in which tools and chemical agents work almost automatically, and produce a lifeless result, with nothing of æsthetic or artistic selection, composition, or treatment.

"Professionals, or those who practise the art in its remunerative applications, have done much to perfect technical process, but have done little to change the opinion of which we speak by using the camera as the artist uses his pencil or brush. The opening of the art to the great army of amateurs has, however, already brought about a significant change in the estimation in which photography is held by artists of discrimination.

"Not that the great mass of amateur work maintains a high standard. This is not to be expected, when it is possible for a person with an hour's instruction to produce photographs at once possseesd of merits and faults equally beyond his comprehension.

"The movement has, however, called into the fields many persons of a true instinct in art, with powers of discrimination and selection, who have acquired sufficient mastery over the technique to reproduce some measure of the beauty which they see. They have worked *con amore*, bound by no traditions, courageous in experiment, having regard only for the result. It is by such workers as these, caring only for beauty and truth, that the possibilities of their art in reproducing beauty and truth have been unfolded.

"The number of steps in the process of making a photograph which call for the exercises of the same artistic powers that must be possessed by the painter will be surprising. The artist photographer must select his picture with reference to its composition of lines, masses of light, shade, and texture. By his choice of lens he determines the width of angle or the scope of the picture. In focusing and diaphragming he divides his definition and his vagueness to suit the requirements of his sense of pictorial beauty. His development is almost individual as the handling of a painter's brush, which chooses between the minute exactness of a pre-Raphaelite or a Düsseldorf canvas and the poetic vagueness of a Corot. In printing he has a wide range of expression. He may use the gloss of albumenized paper, the rough surface of Whatman's drawing-board, the lustrous sheen of Japanese papers, or the rich depths of a carbon film. Although confined to monochrome, the various toning baths and the pigments of carbon films open to him an infinite variety of colors, comcomprising the lustres of gold, silver, platinum, and other metals, deep charcoal blacks and the chalks reds of Botticelli. It is, however, not the wealth of materials so much as the artistic discrimination in the use of them which is illustrated by the amateur work of to-day, and in which progress is now being made.

"It is the hope of the Committee of the Boston Camera Club, in charge of the Fifth Annual Joint Exhibition of the three leading societies of amateur photographers of New York, Philadelphia and Boston, that the pictures shown will exemplify more fully than ever before this artistic tendency in photography. That its work may be recognized by a tribunal eminent in this field, it has selected as judges three artists whose standing in their diverse lines of work gives to their decision the highest weight.

"The Committee has in mind the compliment paid by painters to a sister art, when to distinguish the artist from the mechanical workman a copyist, they gave to a certain class of etchers the title of 'Paint-Etchers,' and it trusts that in work with the camera there may be those who will win for the honor of their art and themselves the title of 'Painter Photographers.'"

The results of this method of judging the prints purely as an art exhibit were certainly disappointing, perhaps because the aim was so high. While it is undoubtedly the case that all the work included in the two classes of awards was *good* work, the separating lines between this and the work not premiated, and between the two classes of premiated work, were not over-obvious, so that the decision of the judges must be taken as expressing merely the collective opinion of themselves as individuals, as to what pleased them or the reverse. Perhaps this is all that any decision at any previous exhibition has done, it may be urged. Granting that, then why is not the opinion of three photographers just as valuable as that of three artists? It undoubtedly is, unless the opinion of the artists (who admittedly are in advance of photographers in artistic methods and standards) is based on some groundwork principle; is an interpretation of these principles as expressed by the photographs under consideration. And this is where the disappointment comes in; the medals and the diplomas are applied so freely to works of such adsurdly unequal merit that one gives up in despair the expectation of learning anything that will help him to appreciate the difference between "photographs" and "painter-photographs." And that is just the expectation which is naturally aroused under the circumstances.

(*To be continued.*)

PICTURE-MAKING IN THE STUDIO.

II.

I will now proceed to describe the production of a picture which may be remembered by some of the readers of The Photographic Times, a small photogravure reproduction of it having been published in its pages about three years ago. It was called "Dawn and Sunset." A wise artist should never ostentatiously describe the details of the putting together of his picture. Analysis takes away the attention from the effect, and fixes it on the mechanism, and his efforts should be directed to hiding the mechanism and showing the effect. Not that he should keep secrets, or pretend to have any, but simply that description defeats his one object, which should be to delight his spectator with his subject, his art and his skill. But a full description of this picture will tell pretty well all I know of how to make pictures in the studio, and it may be worth the sacrifice.

Walking down a country lane on a fine April morning, I met a very old man, bent with years and labor, and supporting himself with two

sticks. He was dressed in one of the picturesque smock-frocks that have now almost disappeared from our rural life. He had a grand head and was altogether one of the best subjects I had seen. I felt an absolute compulsion to make a picture of him. In my mind's eye I at once saw him sitting in his cottage brooding over a dying fire emblematical of the end. I at once engaged him, to his great satisfaction, and had him to my studio, where I made a few preliminary studies. The next proceeding was to make several small rough sketches of subjects utilizing the old man. All of these included a young child as a contrast to the ancient model. From these were evolved an idea and a design that pleased me, and appeared to be within the possibilities of the material at my command. From the small sketch was now made a tolerably finished drawing in charcoal, of the size of the proposed picture, 32 inches by 22, and this size was determined by the size of my camera, 23 by 17. In this sketch was shown the scheme of light and shade I desired, and the position of every object. I may here remark that although a large size suited this particular subject, it is a mistake to make a large picture because you happen to possess a big camera. Different subjects seem to demand different dimensions as well as proportions. In art there is nothing great in bigness (not that I am wise to say so in an American journal). Greatness in art can be packed into a small space. Meissonier put more art into a few inches than many painters put into acres.

A description of the completed subject may aid the memory and facilitate the explanation of the building up of the picture.

The scene is the interior of a cottage, showing a large fireplace, and a window to the left. The window is the principal source of light, but not the only one, as I shall presently show. A very old man is sitting over the fire brooding over the past. At least that is the idea intended to be conveyed. Nearer the window in the fuller light, sits a young mother with a baby in her arms which she has just prepared for the cradle beside her. The child is not asleep, and although a small part of the face only is visible it may be seen that it is answering its mother's smile. The principal light is from the window on the left, and a faint glows comes from the waning fire.

It may, perhaps, puzzle some of my readers to know how the size of the picture, 32 x 22, was controlled by the size of a camera 23 x 17. It must be recollected that a picture of this kind could not be taken on one plate. There were several reasons which made it imperative to take it in portions. A plate the full size would, of course, not have been impossible, but besides considerations of focus, it would be leaving too much to chance to get all the figures quite right at the same time. Nothing should be left to chance, and by taking the figures separately more attention could be paid to each group, while the difficulty of printing them together was not worth a thought.

The sketch having been made to the minutest detail, there remained a great deal of trouble but no difficulty in carrying it out. I had no spare studio suitable to the work, and therefore had to build one. This was made principally of Willesden paper (a very convenient material for temporary buildings) the size about 30 x 15 feet. The end showing the fireplace and windows was built up solidly with bricks and mortar, and chimney of wood. The necessity for a chimney sufficient to carry away smoke will be seen presently. The scene was now arranged and every little detail as shown in the sketch attended to. Too much study cannot be given to this part of the work, and the end of much study should be the absence of evidence of any study at all. Or rather to the ordinary spectator the effect should be that of chance, but the educated artist would see (and admire if properly done) that all apparent chance was the result of trained direction;

> "All chance direction which thou canst not see;
> All discord harmony not understood,"

but which has its effect on the completed result. It is not necessary, however, to interpolate here an essay on the art of composition. One great object in arranging the subject should be to save the models Nothing should be left to arrange after the model is placed. This is a rock on which photographers stumble. Sitters for portraits often become weary while the photographer is fussing over some unimportant detail that may have been seen to previously. Make it a rule to never waste your model.

Pictures of the kind we have now before us are often spoilt by the injudicious use and crowding of accessories. The ease with which objects full of intricate detail are rendered in photography is a great temptation to overload the scene. It should be remembered that the difficulty to be overcome is exactly opposite to that of the painter. The latter knowing the labor required to give detail or finish, endeavors to persuade himself and the public that it is creditable and clever to avoid elaboration and takes refuge in impressionism, tells you the picture is finished when he has done with it, and if you cannot understand it and don't like it, and want to be civil, you cover your retreat with

the word "suggestive." On the other hand, the photographer's difficulty is to suppress, and subordination is one of the least manageable features of his art, and should be carefully studied; not so much because it is a difficulty as that your work will have very little of art quality if it is without that essential character.

In collecting accessories it is of consequence to think of the tone, and its effect on the *chiaroscuro*, as well as the form. It would have been destructive of all harmony, for instance, if a clean white-margined engraving had been placed over the fireplace; if the jug on the table had unduly attracted the eye, or the flowers in the window had been too obtrusive. In the apparently small matter of the wicker cradle in the foreground I had a good deal of trouble. In all the shops I could find nothing but those made of nearly white peeled willow. I had, therefore, to get one especially made of the natural twigs with the bark on. This was not departure from nature, as this kind is often used by the poorer classes.

A word must now be said of the lighting of the group. It is quite clear that, even if it admitted sufficient light for photographic purposes, if the light were obtained from one small window only, the effect must be hard and full of violent contrasts. An expedient, therefore, must be found for softening the shadows. It would not be straining nature too much to imagine that the cottage had another window or open door. To put this into practice the end of the studio opposite the scene was taken out and the arrangement was found to produce the desired amount of softness. Then measures had to be taken for the firelight, a very slight effect, but which, I think, greatly adds to the completeness and naturalness of the picture. It could have been greatly increased, but there was the danger of a vulgar, clap-trap effect. To show the naked fire would not have been desirable, or, indeed, at that time, possible, and therefore a chair, over the back of which hung a towel—not a white one—was placed before it. The source of light was a large pill-box full of pyrotechnic composition, stuck full of bits of magnesium ribbon, and fired by an assistant at the moment of exposure. The flash light was not invented at that time. The open chimney saved any difficulty with the smoke.

Everything being ready it is time to introduce the models. We began with the old man, and he being very easy was soon done with. It is not worth while going into the photographic details except, perhaps, to say that the lens was Dallmeyer's 7 D, the camera home-made of deal, at the cost of thirty shillings, the exposure 35 seconds, and that four plates were exposed. Not that more than one was really required, but I like to have duplicates in case of accidents. Now came the difficulty. The baby, in all groups, if awake, is always the weak link in the chain. I wont enter into any account of the trouble I had in getting the right baby, or the many half-crowns I paid as compensation—or as consolation—to disappointed mothers who brought their treasures for inspection, only to be rejected as unsuitable. The mother was easier, and had had some experience in posing, and knew exactly how to take my orders. I ought to have mentioned that to take this half of the picture the camera had to be swung round a little. Scientific purists, who are the bane of art, would delight in proving that altering the position of the camera would upset the truth of perspective, to which I can only reply that I don't care; that there is no want of truth that the eye can detect, and that I don't supply measuring rules to the spectators of my pictures.

It would have been easy to put the child to sleep, but I had made up my mind that she should show an answering smile to the mother. Another smaller point was to contrast the little hand of the child with that of the woman. The first and second exposures were failures through moving. He only knows who is photographing a baby on a costly plate, what an infinity of time there is in thirty-five seconds! However, out of ten exposures I got two negatives which fairly satisfied me.

While the two sides of the picture were being taken the cradle was not wanted, and was removed out of the way. It was now replaced and a separate negative made of it. If it had been taken with the mother and child it would have been hopelessly out of focus. The picture, therefore, consists of three separate negatives; the old man and background as far as the inside of the chimney jamb; the mother and child, including the window and background; and the cradle.

I am afraid I have gone wearisomely into details, and I also fear I have robbed my picture of any of the mystery that it may have contained, but I should greatly like to see some simple subjects of this kind well carried out instead of the impossible Elaines and Hiawathas.

H. P. Robinson.

THE CAUSES OF FADING.

I.

Until the year 1855, when Davanne and Girard communicated to the French Photographic Society their first researches on the causes determinating

the fading of silver positive images—researches which they afterward completed by a thorough study of the process—the prints were toned and fixed in one operation in a bath compounded to impart sulphur to the image, that is, to the silver constituting the photo-impression, the sulphide of silver thus formed gradually assuming various tints from brown to black.

The substance which produces these coloring changes is one of the compounds known in chemistry as the polythionic series, sodium tetrathionate, a very unstable salt easily giving off sulphur by spontaneous decomposition.

When the salts of silver, the haloids, the nitrate, the citrate, tartrate, etc., are added to a solution of sodium thiosulphate, the silver is converted by double decomposition into silver thiosulphate,* which dissolves in the solution when sodium thiosulphate is in excess, as it is always the case when such a solution is employed in photography to fix the image.

But silver thiosulphate is a compound of little stability, and, as the alkaline polythionates are liable to spontaneous decomposition, whereby the silver is converted into sulphide with formation of sulphuric acid, and this acid by acting on the sodium thiosulphate decomposes it into sulphur and sulphur dioxide, which partly remains in solution as sulphurous acid.

Gold terchloride added to a solution of sodium thiosulphate is converted into gold thiosulphate with formation of sodium tetrathionate and sodium chloride. A double salt is formed, the *sel d'or* of Fordos and Gélis—sodium aurous thiosulphate—which is quite stable when isolated, but which, as every metallic thiosulphate (those of lead, of copper, etc.), is precipitated as sulphide when in solution in presence of certain compounds—sulphuric or sulphurous acids, for example.

The acids—sulphuric, hydro-chloric, citric, tartaric, etc., etc.—at once decompose sodium thiosulphate, the acid readily unites to the alkali-metal (sodium), sulphur is liberated and sulphur dioxide formed.

Salts having an acid reaction likewise dissolve sodium thiosulphate into sulphur and sulphur dioxide. Alum—the double sulphate of potassium and aluminum—gives rise to sodium sulphate, aluminum sesquioxide, which is precipitated, sulphur and sulphur dioxide which, later, partly dissolves, forming sulphurous acid, as said above.

In presence of sulphurous acid sodium thiosulphate is decomposed into sodium trithionate and sodium tetrithionate: $2\,Na_2S_2O_3+3H_2SO_3=Na_2S_3O_6+Na_2S_4O_6+3H_2O$. Both of these salts are unstable and impart sulphur to metals.

A solution of sodium thiosulphate evolving sulphur dioxide necessarily contains sulphurous acid, and, as a consequence of the action above cited, imparts sulphur to lead, silver, gold, converting those metals into sulphides. The experiments can easily be done. Add a few drops of, say, a strong solution of citric acid to a small quantity of a bath of sodium thiosulphate, and in this immerse for a moment a bright piece of silver, quite clean, and you will find it colored yellowish-brown with a metallic éclat.* The yellow-brown substance is silver sulphide.†

The photographic image consists of metallic silver.

P. C. Duchochois.

* Thiosulphate of sodium, of silver, etc., are the same compounds which were formerly called *hyposulphites*.

* The primary action is the liberation of thiosulphuric acid which at once commences to split into sulphur dioxide and sulphur.

† Silver sulphide is black when in mass, yellowish-brown more or less light when in thin layers.

FLASH-LIGHT PHOTOGRAPHS IN DAYLIGHT.

BY taking flash-lights in daytime I have found a great deal of trouble is saved which cannot be well overcome at night; as the objects or persons to be taken are well illuminated if put near a window, and are therefore easily focused, the holding of a lamp or light close to the subject is done away with, and the ghastly effect usually seen in flash-lights is greatly lessened by the rays of light coming in through the window, which, if the persons are posed near it, sometimes give beautiful light effects on clothes and drapery. The picture accompanying this article was taken at 6 o'clock in the evening of a bright day in April, the light being too strong earlier in the day. It was made on an Eagle 40 plate, through a Laverne lens. The stops used F/11, and the plate treated like an ordinary flash-light.

A. Reimberr.

THE KEEPING QUALITIES OF PLATES.

I HAVE noticed lately the discussion raised in some of the photographic societies as to the keeping qualities of plates, exposed, and unexposed, and, as usual, the most diverse experiences were related. So far as my own is concerned, it has been my uniform good fortune to find the average plate most excellent in regard to giving me as per-

fect negatives, whether kept a long time unexposed, or a long time undeveloped after exposure, as the plates exposed and developed immediately after purchase, and said to be fresh from the manufacturer.

A rather severe test was given some plates of Eastman's in 1887, which I left behind me in the fall of that year at Seabright, New Jersey, in my boat house, also used as a developing room, and exposed in the following summer of 1888, obtaining perfect negatives from them. The boat house bore the full brunt of the winter storms, standing on the Shrewsbury River and but a few hundred yards back from the ocean, and the plates had no other protection from damp than the ordinary box they came in, standing upon a shelf.

In 1889 I exposed three dozen Seed plates, sens. No. 23, in a Scovill Detective Camera during a short trip abroad, and obtained thirty-four negatives of good average quality when I developed them five months later, finding nothing lacking in their developable (pardon the word) qualities, but equal in every respect to plates developed immediately after exposure.

Again, about a year ago I developed a dozen Seed plates, sens. No. 25, exposed the year before, all drop-shutter of medium speed, as were those spoken of above, and some of deeply shaded nooks in the woods, and found them all develop as usual.

I may add to my own experience that of Mr. Albert Levy, who was so well known here some years ago for his beautiful architectural photographs of noted buildings abroad, and whose views may be found in almost every architect's office in this country, as he gave it to me himself. It was his custom to take a trip abroad regularly every year in the pursuit of his vocation—the obtaining of foreign views for sale here—and he never developed his plates until his return here, making sometimes over a hundred exposures. In fact, he told me, he thought they gained in strength by being kept many months undeveloped. It should be stated that Mr. Levy always used English plates.

I have seen this theory advanced by others that a plate once exposed kept up a continuous strengthening of the latent image until developed, the influence of the light on the film remaining after the plate was put away in darkness, but personally I have not found this to be so, and should not like to shorten my exposure on the strength of it where the plates were not to be developed for some time, although Mr. Levy told me he made allowances for it. I should be glad to hear of the experiences of others as to this.

I will finish with the last experience I have had of the enduring qualities of plates, in some I used a few weeks ago, from a box opened over four years ago, and which had been knocking about in town and country so carelessly up to this time that I never intended risking their exposure, when finding myself out of plates I determined to try them as I could not wait to procure others. On developing them I found them all that I could wish.

As one of the most important factors in the use of the dry-plate over the wet is this very quality of their ability to keep, more or less, indefinitely between exposure and development, not only to the traveller, but to the busy man at home it becomes a subject of the deepest interest whether the plates of present manufacture are sacrificing their old virtues in the rage to-day for great speed, and it would be of incalculable benefit to have the greasest light thrown upon the subject in the most public discussion of it.

H. Edwards-Ficken.

THE PREVENTION OF HALATION.

It is now several years since I sent a communication to The Photographic Times on the subject of halation, and as in the interval no great advance seems to have been made by photographers in fighting against this defect, I venture to send you a few lines on the same subject, for, although the practice of photographers has not advanced much, the knowledge of the subject has been very considerably increased in the interval I speak of, by a communication by Mr. W. E. Debenham to the Photographic Society of Great Britain.

Mr. Debenham gave the results of a most interesting series of experiments for determining the efficiency of different backing compositions in absorbing light falling obliquely on the interior reflecting surface of glass, and also suggested a new material which has the advantage of great efficiency—greater, according to Mr Debenham, than that of any other substance that he tried, whilst it has the advantage that it can be very readily applied.

The substance recommended by Mr. Debenham is simply burned sugar—known sometimes as caramel. This substance is a very useful one, and is very easily made, by simply heating loaf sugar slowly in an iron ladle till it falls down in a soft black mass. It is, I presume, principally carbon in a fine state of division. It is greatly used in theatres—in provincial English theatres, at any rate—for producing stage liquors. In the property

room is kept a bottle containing a concentrated solution of caramel. A few drops of this in a bottle of water produces a liquid resembling sherry in everything but the taste, smell, and effects; a little more simulates tawny port, and with a larger dose a liquid as dark as Dublin Stout can be produced; and, moreover, if it is wished, even the desired frothiness can be produced by shaking up the liquid, on account of the viscosity of the burned sugar. But all this is beside the subject. To return to the backing question.

I cannot gather that photographers have taken advantage of the new backing material as generally as they should have, and I can scarcely blame them—for although when I read about it I said to myself "This is a good thing, of practical use," I have gone on for the year and a half that has elapsed since I read Mr. Debenham's suggestion, using a a piece of carbon tissue, or simply of black glazed paper, soaked in glycerine and water and squeegeed on to the back of the plate, and this although I have backed many dozen plates, and this all on account of laziness preventing me from spending ten minutes or a quarter of an hour in burning a few lumps of sugar.

I have recently tried Debenham's backing; hence this exhortation to all and sundry to give it a trial at least.

I do not know precisely how Mr. Debenham mixes his backing, but I proceeded in the following manner: A few lumps of sugar were burned as indicated, and the resulting black mass was dissolved in a small quantity of water. An ordinary gum-arabic solution was made up—considerably thinner than would be suitable for adhesive purposes—and the burned sugar solution was added to this a little at a time till a brush dipped in it and drawn across a clean glass plate left a dark—not quite black—streak.

In applying the mixture to the back of the plate a broad X camel's-hair brush is used, the plate being laid face downwards on a pad of blotting paper, and not more of the viscous fluid is taken up on the brush than is necessary.

If the plates are to be exposed at once near home, they may be placed in the slides wet, but in this case great care must be taken that the solution is so thinly spread that it will not run down and get into the slit of the dark slide. A much better way is to stand the plates in a rack till the backing is dry, and to the fact that this is almost necessary, if plates are to be carried for any length of time in the slides, is probably due the averseness of photographers to make practical use of this or any of various other kinds of backing. I suppose there is scarcely one photographer of ten of the present day who has any place really convenient for drying even the backing on a dozen plates—no place, that is, where the plates will be *absolutely* protected from actinic light, yet where they will have enough change of air to insure drying in a reasonable time.

When the plates come on for development, they are soaked in water for a minute or two, and then the backing is washed away by a sponge under water flowing from a tap. This is the only objection I have to this kind of backing—this or any kind that involves soaking the plate in water before development. I do not believe in soaking a plate in water before development, and this for both theoretical and practical reasons. If the developing solution is poured directly on a gelatine film, whether on glass or other support, the developer is rapidly absorbed by the swelling of the gelatine, and penetrates the film to the back. If a film has already been soaked in water, the developer replaces the water only slowly by diffusions, and it is much more difficult to get density than if the developer is poured over the dry film. This is very easily proved by exposing a plate to a subject the two halves of which are pretty equally illuminated, soaking one-half in water for several minutes, and then developing.

There may be some, neater-handed than I, who can wash the backing away without wetting the film side of a plate, but I have, so far, failed in my attempts. There is, however, this to be said: Photographers are by no means at one as to the matter of preliminary soaking or not. Many—perhaps the majority—prefer to give a preliminary soaking.

I mention gum arabic only, as a medium for the burned sugar. Debenham, however, mentions also gelatine, pointing out that it should be easy to make a gelatino-caramel film that will frill off the plate as soon as this is placed in the developer. Very likely, but here's the dickens of it, so far as I am concerned. I seem to have reached that point where I occasionally produce a film that frills when I don't want it to, but not to that point where I can produce a film that will certainly frill when I do want it to.

But I fear that all this is in vain. It is not of a good backing that photographers have to be taught, it is of the necessity for backing at all, and it is quite true that, for many subjects, with many kinds of plates, backing is not a necessity. Few photographers, however, know how large a percentage of their work is degraded in quality, if not actually spoiled, by the effect of reflection from the back of the plate—the principal, although not the only

cause of halation. In most kinds of portrait work the degradation is not perceptible, although it is, at least with some kinds of plates, when an attempt is made to justly render white drapery, and also when very bold effects of lighting are attempted.

In the case of landscape work it is probably no exaggeration to say that, if photographers will make duplicate negatives of each subject, one on a backed plate, the other on an unbacked plate, there will be found to be a perceptible difference in result in about 50 per cent. of the cases. In other words 50 per cent. of ordinary landscape work suffers from degradation of quality that might be prevented by backing.

Let any photographer, either amateur or professional, make the following experiment: Take half a dozen plates, back one-half of each, and expose them on trying subjects, dark foliage against a bright sky or the like, and notice the result on development. He will be an advocate for backing in landscape work—or in a great proportion of it at any rate—from that day onwards.

In the case of interior work it is generally recognized that backing is essential. I recommend those who have interior work to do to give Debenham's burnt sugar a trial.

During the discussion that followed the paper by Mr. Debenham, above referred to, Mr. Chapman Jones objected to backing at all, stating that the film should be so thick that no light should penetrate it to the back of the plate. Mr. Debenham replied that he knew of no commercial plates so thickly coated as to prevent halation in all cases. I believe no one has more consistently advocated the thick coating of plates than myself, yet my experience is the same, except, perhaps, in the case of very slow plates. Moreover, after making, myself, plates with films so thick that they could be relied on not to show any halation due to reflection from the back of the glass, I met with endless difficulties in working them. There was great difficulty in drying the plates without "drying marks;" the time taken for fixing was actually sometimes measured by hours! The washing had to be *very* long, and, after all, many of the negatives made on such plates now show yellow stains indicating that the fixing was, after all, not complete.

Let us by all means have films as thick as we can have them and yet workable, but still backing is a thing that should be made more use of than it seems to be at present.

W. K. Burton.

Correspondence.

To the Editor of THE PHOTOGRAPHIC TIMES:

Dear Sir: It may interest you to know that we observe and bulletin three times daily the day's actinism.

Other stores bulletin the temperature, the humidity; wind force, etc., but we are the first to bulletin the force of light.

Our bulletin is so arranged that for any given stop, with any plate, one can tell how quick or slow to snap or how long to time. Starting out with this as a basis the very *beginner* can have far better success than without it.

Yours truly,

E. W. Newcomb & Co.

HELIOCHROMY.

To the Editor of THE PHOTOGRAPHIC TIMES.

Dear Sir: Not long since I read in one of our daily newspapers another report of the invention of photography in natural colors. This time ten pictures were said to be printed on the press by mechanical means. What is there new about it, and is the method spoken of practical enough to be applied commercially?

Yours truly, Ch. M. L.

Heliochromy, or printing by mechanical means in color from photographic negatives, is by no means a new thing, and manifold have been the attempts to bring it to perfece tion. We find in Eder's "Jahrbuch for 1892," an article on the subject, from which we may abstract the most important and most interesting part as it bears directly on this subject.

Baron Ransommit, an Austrian, proposed as early as 1865 to make photo-lithographs in color and tried to solve the problem by making first three distinctly different negatives from the original, one of these by exposing the plate through a red, the second through a blue, and the third through a yellow-ray filter, and to transfer them singly upon a lithographic stone. The result was expected to be three printable stones, which were to be inked with appropriate colors, printed one color upon the other, resulting finally in a photo-lithograph of the colors of nature.

Cros and Ducos du Hauran, of Paris, accepted the same principle in 1869. The practical execution of the idea found its first obstacle in the want of a photographic film sufficiently sensitive for red and yellow, and only after 1873 when Vogel published his experiments with color sensitive plates and after Waterhouse had introduced eosine, Cros and Ducos were enabled to work with anything like success. Joseph Albert applied the method to Lichtdruck printing in 1867 and his results were highly encouraging.

Photographic color printing requires in the first place three negative reproductions of the original. The first representing all color tones with the exception of red, the second a reproduction of all color tones, blue excepting, and the third for yellow printing upon which all colors, yellow excepting, have become actinic. The principle of the method will be readily understood by merely considering the results of printing from an ordinary negative. A

negative upon which all colors, black excepting, have acted is necessarily requisite to produce a positive representing black only.

The greatest disadvantage to this otherwise very clearly conceived idea is the selection of proper red, yellow and blue pigments for printing, which was at first left to the printer, who naturally chose color most convenient to the technical work, without discriminating whether or not they harmonized with, or were similar to the colors of the original. Albert published at one time a reproduction of a piece of calico printed in many colors, and everybody admired it and spoke in the highest terms of it, but comparing the reproduction with the original, a very great dissimilarity between the colors of the original and those of the reproduction become painfully apparent. The cause of this anomaly must, however, not solely be ascribed to injudicious selections of color, but is very much due to the character of the light-sensitive material employed in the production of the negative.

Eosin-collodion, principally used by Ducos, is mainly sensitive for green, yellow and greenish-yellow, much less so for blue, and for red not at all or but very little, and even by the interposing of yellow, blue and red ray-filters it was impossible to do full justice to the excellent method.

Vogel, who had understood quite well the difficulties Ducos had to contend with, published in 1885 his new heliochromic method.

Instead of one optical sensitizer as Ducos had done, Vogel uses several of them and one for each particular color and plate. The color-sensitive plates for single colors, for red one, another for green, a third one for yellow; but bromide of silver being highly sensitive for blue no sensitizer is wanted for that color but the sensitizer for a shade of blue, the bluish-green particularly.

The optical sensitizer should at all times be used as a color to print with from the plate obtained by its aid, and wherever that is impossible to do another pigment be used of as near as possible the same spectroscopic properties. The reason for that will be thoroughly understood when we consider that the pigment of the print must necessarily reflect all those color rays not absorbed by the color-sensitive plate, or inversely the pigment color must not reflect rays that were absorbed by the color-sensitive plate.

With all these methods differently applied to color printing, a plate in neutral tone has become a necessity. Till recently this auxiliary has been abandoned in consequence of very important improvements made by the spectroscopist and the expert in color printing.

The method described in your newspaper is not new, as you will perceive, neither is the principle, but the many improvements made have brought it to the front now. Bierstadt has for years produced heliochromic prints without the neutral negative, and Kurtz's color pictures, printed on the ordinary type press from high relief plates, excite the admiration of the American public. Color printing becomes by degrees the property of all our photo-mechanical operators, and verily can their work compare very favorably with that made in Europe.

C. E.

NOTES ON SOME NEW RAPID ORTHOCHROMATIC COLLODIO-BROMIDE EMULSION PROCESSES.

(*Continued from page* 247.)

WHEN Solution II. is ready, it is poured in a thin stream into No. I., the latter being well shaken meanwhile. This operation must be performed in a dark-room with orange light. Solution II. must be kept heated from 40 to 50 deg. C. (103.5 to 122 deg. Fahr.), otherwise the silver-ammonia salt will crystallize out; it is desirable therefore to stand the solution from time to time in a water bath heated to the above temperature. The mixing of the above quantity of emulsion should take about ten minutes, The emulsion is well shaken up and tested for acidity. A little of it being poured on glass and wetted with water should show a slightly acid reaction. If alkaline, it is acidified by adding acetic acid drop by drop. It is then well shaken for about a quarter of an hour, and after standing for an hour is poured into five or six times its volume of water. The silver bromide collodion separated out, is collected in a clean linen cloth, and the ends of the latter being tied so as to form a bag, is washed in running water for about a couple of hours. It is then finally washed with distilled water and spread out upon a thick layer of blotting-paper to dry, which takes one or two days. The dry silver bromide collodion can then be kept in black bottles in a dark place for use as required.

I found no difficulty in following Dr. Jonas' instructions, but the mixed emulsion was kept for a day before being washed, with the object of getting greater sensitiveness, and it might possibly be kept even longer with advantage, because I noticed that the unwashed emulsion gained sensitiveness by keeping, and also became much more uniform in texture, though thinner. After a week it became very thin.

To make the final emulsion, dissolve

Silver bromide collodion	6 grammes.
Alcohol	40 c.c.
Ether	60 c.c.

The sensitiveness of the emulsion is after an hour about ½ deg. Warnerke. After twenty-four hours, ripening at 60 deg. to 70 deg. F. it increases about two to three times, and the color of the silver bromide changes from red-violet to blue-violet,

All chemicals must be perfectly pure, and the greatest cleanliness must be observed in all the vessels employed.

The mixed washed emulsion can be kept ready for use; some I prepared about a month ago is now in very good order.

I have found that the emulsion can also be used unwashed with good results. At first it gives rather dense pictures with very clear shadows, but after a few days it is more sensitive and the image not quite so dense and hard; the film also becomes more uniform in texture. After a week, though more sensitive, it gives thin images slightly inclined to fog with the paramidophenol developer, and the results obtained with the washed emulsion are certainly better. The unwashed emulsion would probably work well if used within three or four days of being made up, and would of course be more economical for work on the lare scale.

Dr. Jonas gives very full details about the preparation

of the coloring solutions. For coloring the emulsion, various dyes of the eosine series, or cyanine, may be used in combination with silver nitrate and alcoholic ammonia. Each 100 c.c. of the emulsion should contain 1.7 milligramme of silver nitrate and an equivalent amount of dye, as well as a certain quantity of picrate of ammonia and glycerine. The following solutions are prepared :—

I.--Eosine Solution.

Eosine (yellow shade)	4 grammes.
Distilled water	50 c.c.
Alcohol (96 per cent.)	450 "

If erythrosin is used the proportions are the same.

II.—Silver Solution.

Silver nitrate	3.4 grammes.
Distilled water	50 c.c.

Strong solution of ammonia is added till the solution is clear, and alcohol to make up 200 c.c.

III.—Solution of Ammonium Picrate.

Picric acid	2 grammes.
Distilled water	10 c.c.

Ammonia is added to neutralize the acid, and then alcohol to make up 300 c.c.

These solutions are used in the following proportions:

Solution I. (Eosine)	75 c.c.
" II.	30 "
" III.	30 "
Pure glycerine	20 "
Alcohol (96 per cent.)	45 "

The solution is allowed to settle for a day or two, filtered, and 20 c.c. are added to 100 c.c. of the plain emulsion.

The formula for use with erythrosine differs slightly from the above.

Solution I. (Erythrosine)	75 c.c.
" II.	30 "
" III.	30 "
Pure glycerine	25 "
Alcohol (96 per cent.)	120 "
Distilled water	20 "

The muddy solution is allowed to stand for a quarter of an hour, and strong ammonia is dropped in till it becomes quite clear; it is then allowed to stand for a day or two, filtered, and is mixed with the emulsion in the same proportion as the above—*i.e.*, 20 c.c. to 100 c.c. of emulsion.

After the addition of the coloring solution, the emulsion is well shaken and filtered through cotton wool, and is then ready for use. The colored emulsion keeps good only for one or two days, and is best used on the day of preparation. It should, therefore, only be mixed in small quantities as required for use. (Some colored emulsion was found to be absolutely insensitive after a week.)

I have found that the difficulty of keeping the colored emulsion may be obviated by coating the plate with the plain emulsion, either washed or unwashed, then washing it under the tap and flowing over it the colored tincture of eosine or erythrosine diluted to half strength with water. In some cases this may be a more convenient way of working. A solution containing—

Erythrosine	1 gramme.
Silver nitrate	1 "
Picric acid	1 "
Ammonia (sp. g. .880)	about 30 c.c.
Spirit of wine	500 "
Water	500 "

used as a bath has also given very good results.

Dr. Jonas says that emulsions colored with eosine give soft harmonious negatives, while the erythrosine gives more density and contrast. I have not yet tried eosine, but erythrosine has given me very bright pictures. In trials with wet collodion, made some years ago, I found that cyanosine gave by far the best results, but it does not seem to do so in this process.

J. Waterhouse.

(*To be continued.*)

The Editorial Table.

"A Practical Treatise on the Diseases of the Skin," by Henry G. Piffard, A.M., M.D. Published by D. Appleton & Co. New York: 1892.

We cannot speak of the scientific excellence of this work, as we are not a doctor in medicine, but simply a photographer. As such we admire the perfection of the photo-illustrations, over 80 in number. At first sight we could not believe they were photographs, if the sharpness of the most delicate details which photography alone can delineate did not detect their origin. The roundness of the body, the natural appearance of the skin is indeed remarkable; it looks as if the pictures were drawn by the stump. We have been told that they were taken by magnesium flash-light. Flash-light? Yes, and no better, if as good, photographs of the patients could have been taken in an ordinary light.

We have seen a considerable number of flash-light pictures, and before we had seen those of Dr. Piffard we thought it was impossible to entirely avoid solarization or want of details in the high lights by this method of lighting. His are successful in all respects.

"The Discovery of America," by John Fiske, 2 vols., 8vo., Boston and New York: Houghton, Mifflin & Co., 1892.

This work is one of the most instructive we have read on the subject. The mere reading of the preface imparts to those who have any knowledge of the history of mankind and its philosophy an irrepressible desire to read the whole book at once, as it were. Moreover, the style is clear, elegant and engaging. It is useless to say that it is well printed and well illustrated, as should be any work of that character. The publisher's imprint is a sufficient guarantee of faultlessnes in these respects.

"The Discovery of America" contains over 1,200 pages. To review it in a manner worthy would require more space than is allowed to us in this magazine. We will, however, endeavor to give our readers *un aperçu* of the whole work.

The first chapter, "Ancient America," was specially interesting to us. It treats of a subject we have studied with Bubbock, Broca, Boucherde, Perthus, Morlot and other authors who have written on the prehistoric man, the trog-

lodyts or cave-men, etc. And the reading of this chapter added much to our knowledge. We refer to the antiquity of the American aborigines, which the author states descend from tribes emigrated from the old world—which we think to be contestable. He shows by irrefutable proofs—human bones, remains of mammals, some of them still existing, shell heaps similar to the Kjöklenmöddings, etc.—that America was certainly inhabited at the post-pliocene period and that the social state of the prehistoric Americans was no more advanced, nearly the same as that of the Eurpeans of the diluvium or palœolitic period, the remains found at Saint-Achud, in the caves on the banks of the Vázère (Le Moustier, La Madelaine les Eyzies), etc., being similar in many respects to those discovered in Delaware, Ohio, the gravel of Trenton, etc. The author then describes the flora and fauna of America at the quaternary period in question, discusses the origins of the different tribes of the aborigines, and shows us their progress in civilization which at any time did not reach above that of the ancient Egyptians, although not derived from them. "It was an outgrowth of peculiar conditions acting upon the aboriginal American mind . . ."

Chapter II. treats of the "pre-Columbian voyages," and it is not the least remarkable. The erudition displayed is great, as it is, in every chapter but presented in a form which is far from wearing the reader. We think that this subject has never been presented in such a complete manner.

Chapter III., "Europe and Cathay," is a philosophical story of Europe since the eleventh century to the time of Columbus. It explains why the Scandanavian voyages to Vinland did not sooner result in the discovery of America and the migration thither of Europeans, but that it becomes a necessity, when the taking, in 1453, of Constantinople by the Turks, who extended their conquests to Syria and Egypt, had cut off the commercial transactions between the West and the East, to find a water route to Cathay, the Indies, which was the real object of Columbus, as the reader knows, and which he thought he had accomplished.

Chapter IV., "The Search of the Indies," instructs us with the state of the geographical knowledge in the Middle Ages, when the notions of Herodotus, Ptolemy, etc., were still prevailing. Then—but we must stop here—the outlines we have given of these first chapters are sufficient to show in what a masterly manner are treated all the others, and, consequently, the great value of "The Discovery of America."

Anleitung zu den Laboratoriums Arbeiten. Professor Alexander Lainer. Halle a/S.: Wilhelm Knapp.

An appendix to the author's excellent book on photographic chemistry. He describes in concise form all the operations performed in the photographer's laboratory and illustrates them with very accurately drawn cuts.

Most of these operations occur daily, and Professor Lainer deserves much credit for having given to the young photographer this guide for the chemical part of the work. But not only will the student in photography find much valuable information in this book; it may equally well be applied to the wants of the young pharmacist, and be a welcome aid in the experimental room of the chemical student.

We recommend this book to all interested in the study and practice of chemistry.

Queries and Answers.

252 C. E. B.—(1) What is the difference between a solar print and a bromide enlargement? (2) What is the best book of instruction in crayon work?

252 *Answer.*—(1) There is practically but little difference between the two processes, instrumentally or chemically. With the solar camera the sensitive paper is of iodide of silver, and the picture is developed with gallic or pyrogallic acid, or albumen, chloride of silver paper is used, when the picture is printed out and subsequently toned and fixed. With the solar camera a condensing lens is absolutely necessary.

On account of the great sensitiveness of bromide of silver gelatine emulsion paper, no condenser is required, but the picture is invariably developed with ferrous oxalate, eikonogen or hydrochinon and then fixed.

(2) A. Barhydt.—A complete treatise on Solar Crayon Work, Scovill & Adams Co., 50c., is the book you want.

253 JENNY T. writes: I like the Bradfisch aristo paper very much indeed, but cannot tone it satisfactorily with the solution made by the manufacturers of the paper. It works too slow, and by heating it but slightly the gelatine film will come off the paper. What shall I do?

253 *Answer.*—Either tone and fix in separate solutions, or, if you prefer the combined bath, take that described on page 89, "American Annual of Photography" for 1892.

254 P. HAILER wants our advice in regard to purchasing a new lens Rapidity, field, depth and a moderate price are of consideration.

254 Take a Scovill Instantané. It will suit you there without doubt.

255 B. P.—What is the best plate for copying engraving, with the ultimate design to print lantern-slides from them by contact?

255 *Answer.*—The Carbutt A, B and the process plate. Develop with S. P. C. para-amidophenol. The same developer does well with positives and negatives.

256 ANNIE T. G. has sent several very inferior prints, made from feeble negatives, upon Bradfisch aristo paper. She has printed in the bright red sunlight, and still the pictures are so very poor.

256 *Answer.*—The same paper and negatives printed slowly in very much subdued light, will give you much better, doubtless quite satisfactory proofs.

257 F. W. SCHMIDT.—Will you kindly tell me where I can find description of Valenta's method, how to increase the sensitiveness of asphaltum by sulphuration?

257 *Answer.*—On page 514, PHOTOGRAPHIC TIMES, Vol. XXI., you will find Dr. Eder's article on the subject translated from the original in *Photogr. Correspondenzen.*

We will take occasion here to call attention to the fact that the asphaltum solution must not be overheated, else the residue will be of powdery crumbling nature not more sensitive than ordinary asphaltum. The operation of sulphurizing must be done with scrupulous accuracy.

THE PHOTOGRAPHIC TIMES.

AN ILLUSTRATED WEEKLY JOURNAL DEVOTED TO THE ART, SCIENCE AND ADVANCEMENT OF PHOTOGRAPHY.

Issued every Friday.

W. I. LINCOLN ADAMS, Editor.

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First.—Because it is acknowledged to be the leading organ of photography in America.

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Seventh.—Because you reach a class of buyers in it, not obtained through any other medium.

Eighth.—Because it is not read and then thrown away, but is preserved and bound, on account of its beautiful illustrations and original information.

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Twelfth.—Because its pages are double the ordinary quarto size.

Thirteenth.—Because its rates are lower than any photographic publication, considering the size of page and the extent of circulation.

Fourteenth.—Because your advertisement will receive the best of treatment on the part of the compositor, and will be advantageously placed in its pages.

Fifteenth.—Because all its advertisers are endorsed by the publishers as being worthy of patronage.

Sixteenth.—Because no advertisement in any way objectionable is admitted to its pages.

Seventeenth.—Because all the leading manufacturers of and dealers in photographic goods are represented in its advertising pages.

Eighteenth.—Because its advertisers receive more returns from ads. in it, than in any other photographic publication. (An unsolicited testimonial from a leading photographic dealer.)

Nineteenth.—Because it is not an experiment, having reached its 22d year.

Twentieth.—Because, in short, it will pay you to advertise in it.

Commercial Intelligence.

OFFICE OF
SCHERING & GLATZ,
55 MAIDEN LANE.

NEW YORK, May 2, 1892.

The undersigned beg to inform you that they will continue from this date, at the above address, under the old firm name, the business established by the late Hugo Schering and Mr. Joseph Glatz.

The partnership interest of Mr. Marshall F. Horner which was assigned by him under date of March 19, 1892, as per our circular, has now elapsed by limitation.

While we must state, to our deepest regret, that Mr. Joseph Glatz retires permanently from the firm, we are happy to say that he retains a friendly interest in its welfare and that he will aid the new firm with his experience and trusted advice.

Soliciting a continuance of your agreeable correspondence, we beg you to kindly take note of our signatures at foot. Respectfully yours,

C. GOTTLOB KOLB.
CARL F. STIEFEL.

ALL THAT ARE LEFT.

The following circular was sent out by the publishers of "The American Annual of Photography," and below we give the replies which were received since last issue:

PHOTOGRAPHIC MERCHANTS: We take pleasure in advising you of our great success in selling "The Photographic Times Annual" for 1892. Though over 16,000 copies were printed, the entire edition has been exhausted. Orders, however, are continuing to come in, which we are now unable to fill and if you have any of the books remaining in stock, we shall take pleasure in advertising that fact in THE PHOTOGRAPHIC TIMES, free of charge, notifying those in search of the book where they may procure it.

Yours truly,
THE SCOVILL & ADAMS CO.
(Publication Department.)

New York, April 12, 1892.

R. M. DAVIS, of Denver, Col., has "several copies still left."

O. H. PECK, of Minneapolis, reports seven copies in paper still unsold.

Business Notices.

CORRESPONDENCE SOLICITED by a photographer who intends visiting Mexico and the Northwest, or any special place to which it is desired he should go, for the purpose of making stereoscopic or other photographs. Correspondence solicited with a view of selling the right to publish such negatives as he shall make or the negatives themselves. H. MILLER,
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MR. C. BROCKWAY, 33 Worth Street.:

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We shall receive with pleasure such photographs, and invite all amateurs and professionals to assist us in making the Chautauqua School Exhibition of 1893 superior to any of its predecessors.

For particulars apply to

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FOR USE.—Take 1 ounce of the above solution and from 2 to 4 ounces of water, according to the length of exposure.

The stronger the solution the greater the intensity of the resulting negative; the more diluted the solution the greater softness and more detail.

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A first-class printer, toner and retoucher, one that is able to assist under the skylight and in the dark-room will find a good situation by applying to Adt & Brothers, 56 Bank Street, Waterbury, Conn.

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Operator and retoucher would like a situation at once; ten years' experience in city studios. Address J. M. Knight, Photographer, Washington Square, Worcester, Mass.

As reception lady; can retouch, mount and spot, and be generally useful; five years in last position, and can give best of references. Mrs. Gillies, 490 West Avenue, Buffalo.

Situation wanted by advertiser, age thirty-two years; ten years' experience as general assistant; competent to operate, retouch, and first-class silver printer; good reference. Address J. Triggs, No. 234 South Alamo Street, San Antonio, Texas.

A first-class printer and toner is open for engagement; ten years' experience in best galleries. Address Gilgannon, 146 E. 17th Street, New York City.

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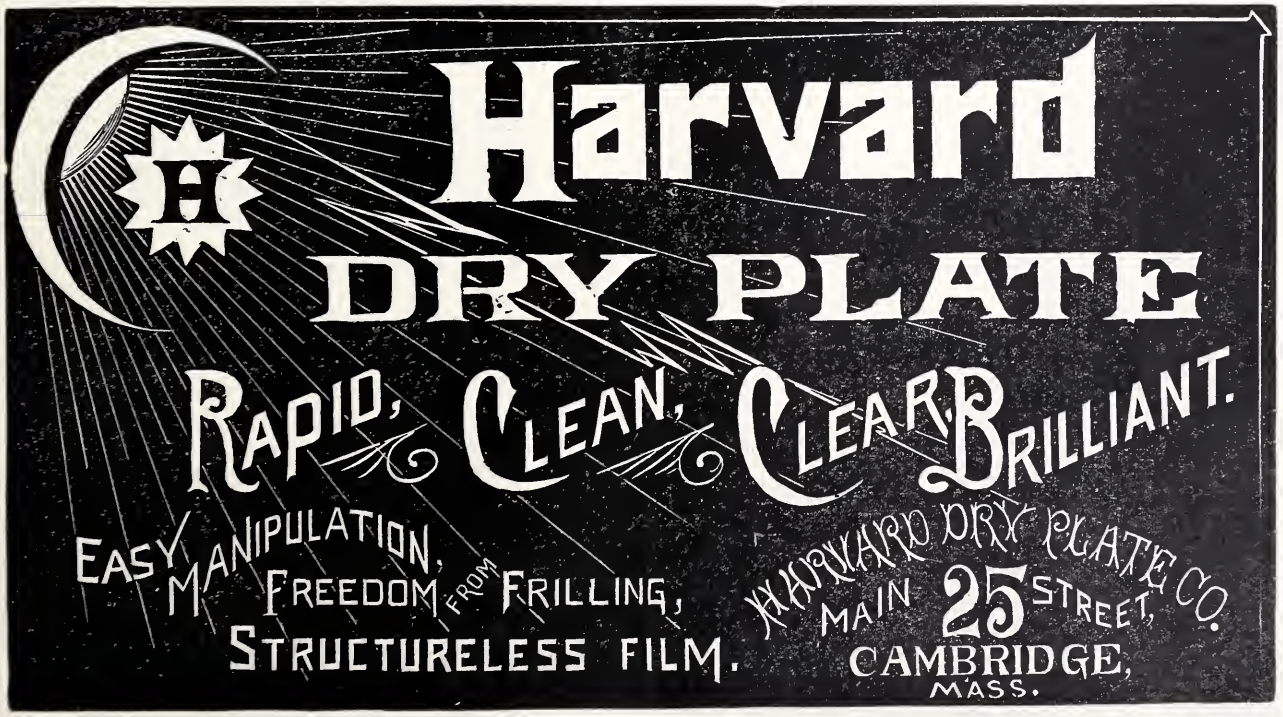
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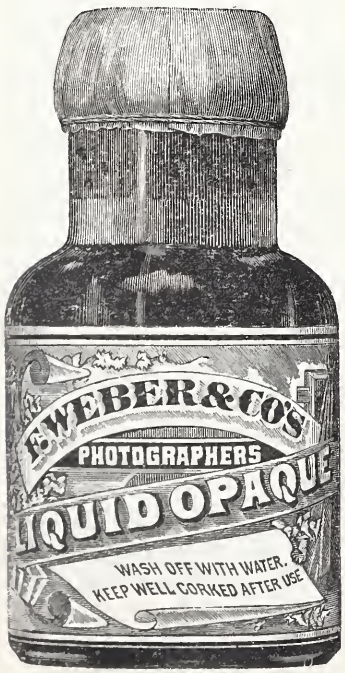
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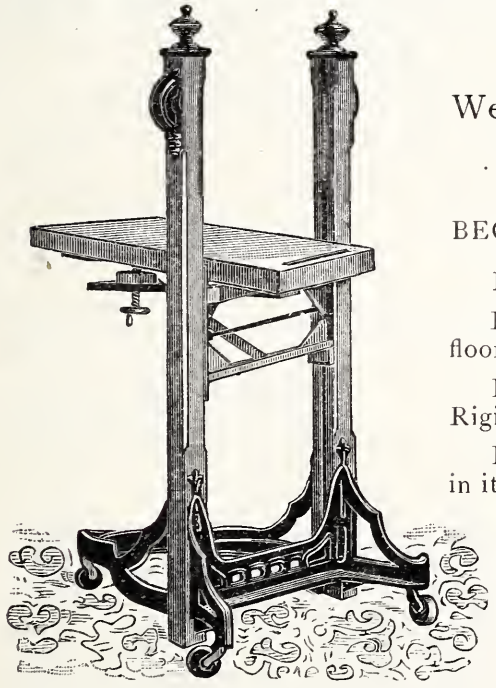
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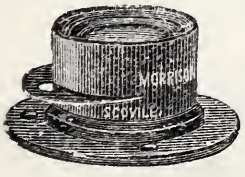
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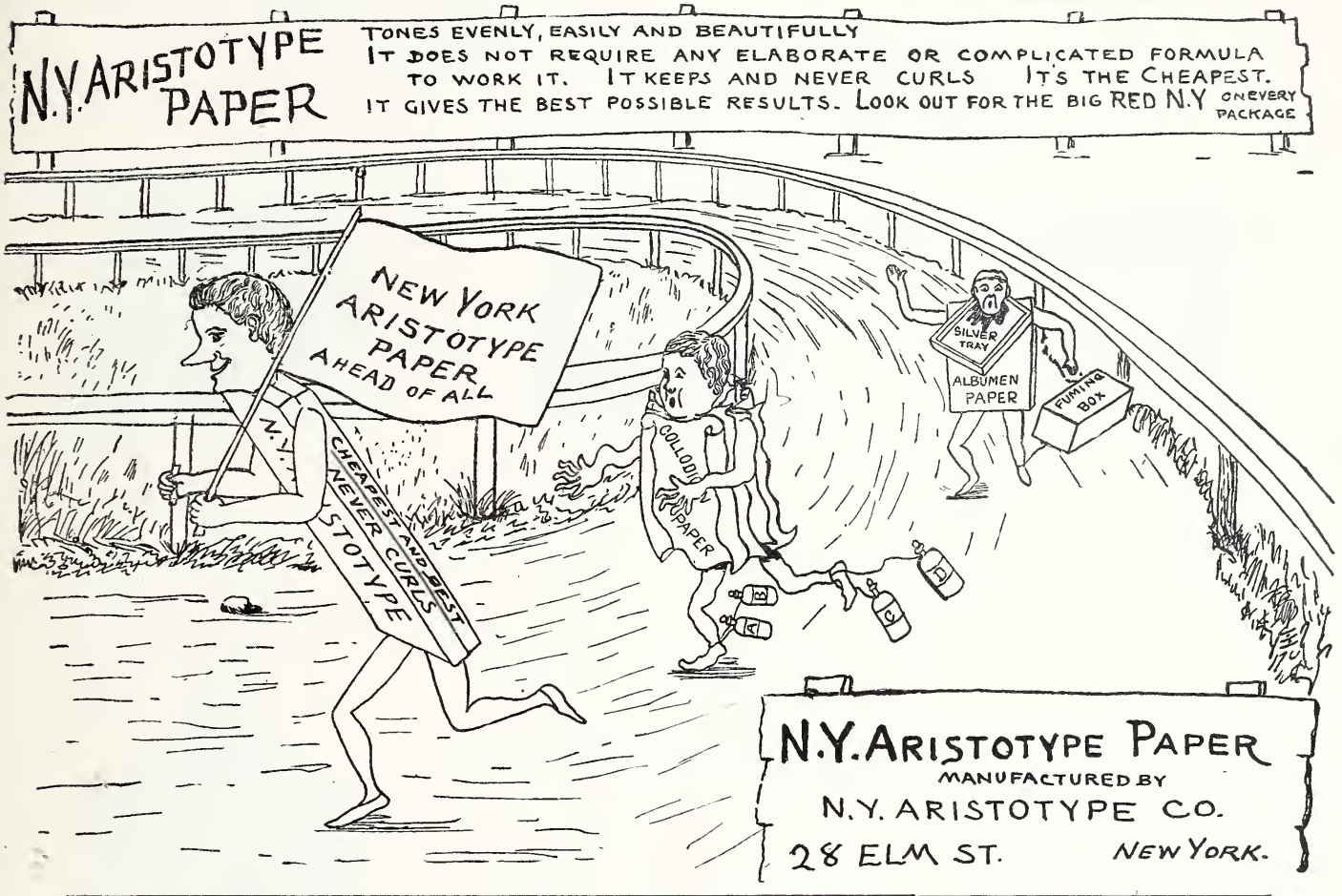
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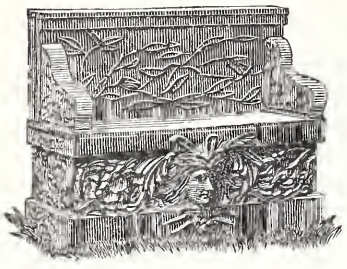
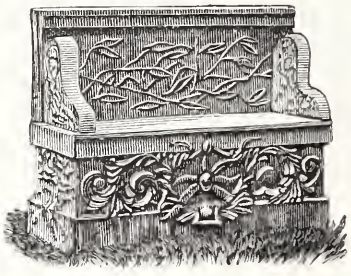
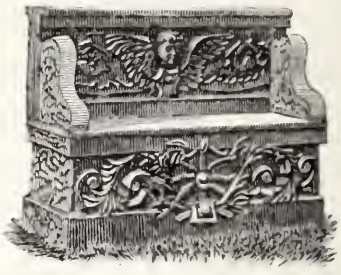
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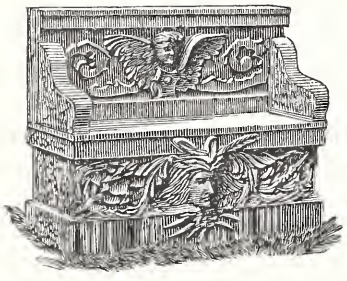
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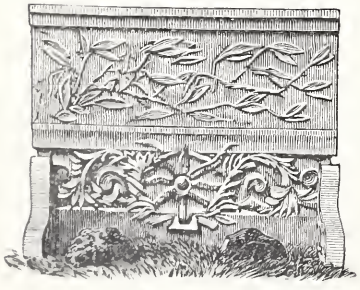
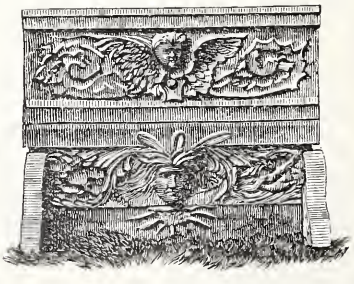
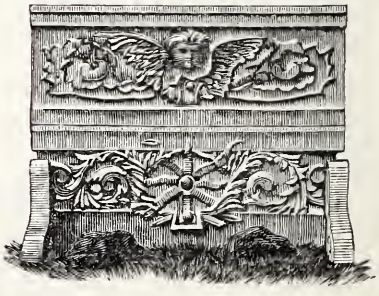
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4 x 6 feet	$2.50
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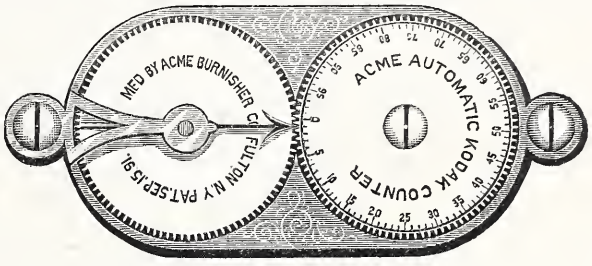
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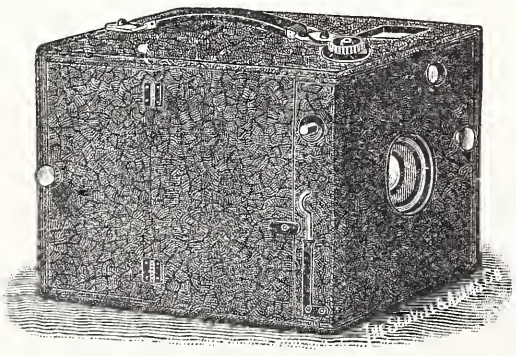
These Glossy Colors, as well as the Retouchers and Albumen Whites, can be used either before or after burnishing. They are all put up in cylinders, neatly wrapped in tinfoil. They will be found very economical in use, as by putting a drop or two of water on the palette and gently rubbing the ends of the cylinders in it, sufficient color will be produced for a number of pictures.

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Photo Retouchers, I., II., III.	$0 50	each.	
Albumen Whites, I., II., III.	50	"	
Glossy Colors.			
Cobalt Blue	60	"	
Rose Madder	60	"	
Cadmium Yellow	60	"	
Scarlet Lake	50	"	
Sepia	$0 30	each.	
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No. I., the three Retouchers and Whites	2 25	"	
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THE TRIAD CAMERAS.



When a discovery in photography is announced, it is claimed that the new article will displace everything then in use. These claims are seldom justified. There is generally found a place for the new article, if it has any value, and for the old as well.

For commercial purposes, for instance, such as the reproduction of photographs for illustration, it has been demonstrated that collodion "wet" plates are better than dry plates. For the use of the amateur, on the other hand, dry plates are much better than wet plates. Though many new supports have been tried, the sale of glass dry plates is larger now than ever before. Where only a few pictures are to be made on one day's outing it is likely that the experienced photographer will always use dry plates or cut films.

If he is going away for a summer vacation, or for a trip abroad, and expecting to to make a large number of pictures, he will procure a roll-holder loaded with continuous films. This will save him the bother of developing while he is away from home, and of changing plates; but he cannot well know what results he has secured until he has exposed the entire roll and has had it developed

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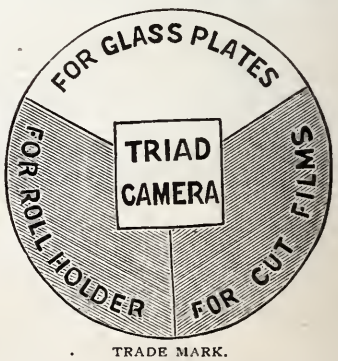
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For timed exposures use a tripod (easily adjusted to the camera by the plate underneath), open the door at the back, so that the image on the ground glass can be easily seen, set the shutter with the opening opposite the lens, and bring into use the felt cap which fits the opening in front of the camera. By complying with these simple requirements you have a complete camera for timed exposures.

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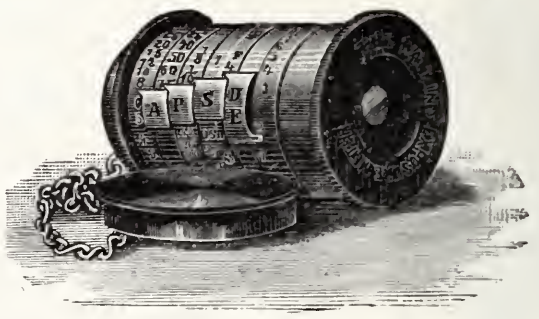
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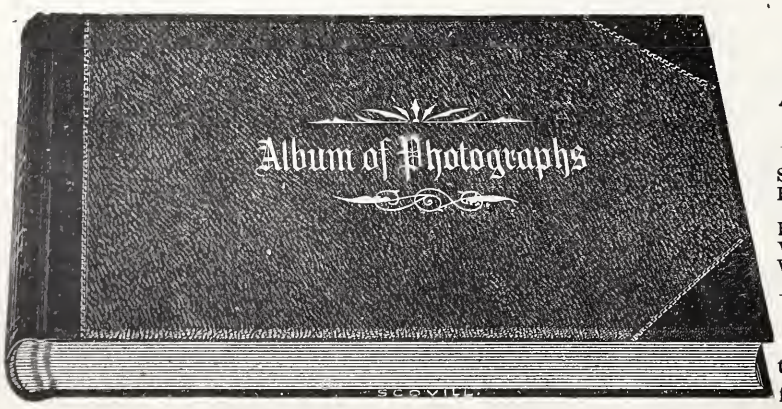
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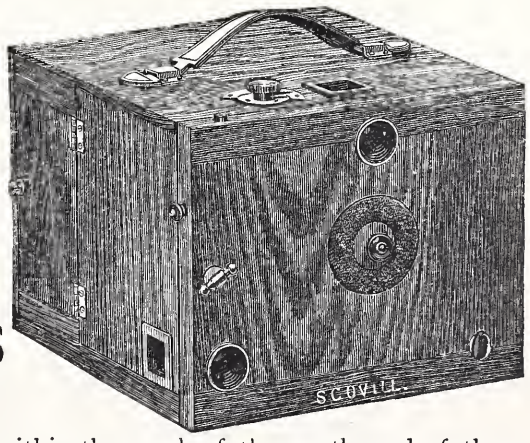
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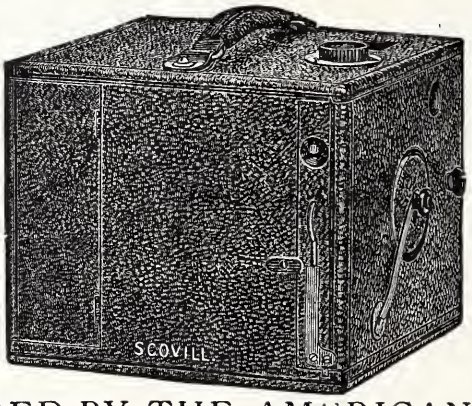
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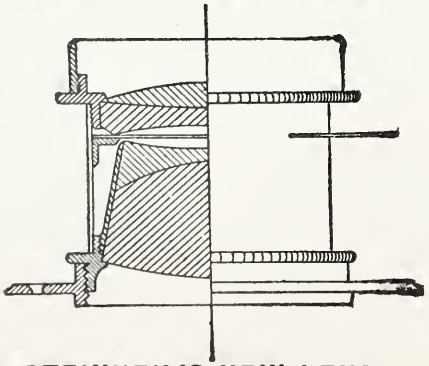
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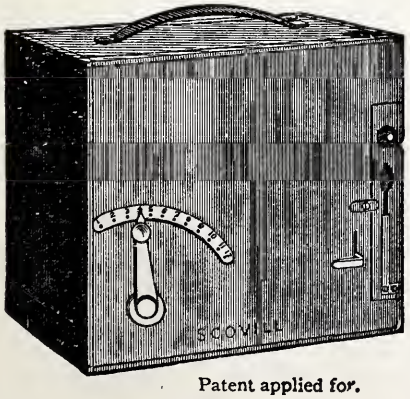
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How It Sells.

On February 15th, the first edition of 16,000 copies of "The American Annual of Photography and Photographic Times Almanac" for 1892, being nearly exhausted, the publishers issued a circular inquiring concerning the number of books unsold, if any, and also concerning the demand which still existed for the book, with a view of determining the advisability of issuing a second edition. In response to this circular about fifty answers were received, from which the following are quoted at random:

Felix Reifschneider, Jr.: "We have not got one copy of the fifty copies we had. They sold very well, twenty-five the very first day I had them in."

Thos. H. McCollin & Co.: "'The Times Annual' for 1892 is a great success. We have had four lots and have only a half dozen copies on hand. There seems to be a steady demand for it."

W. C. Russell: "Have just sold out, . . . and will say I have never yet been stuck by having any of the American Annuals left on hand."

F. Hendricks & Co.: "We have on hand only five copies to-day of 'The Times Almanac.'"

Sweet, Wallach & Co.: "We have disposed thus far of over 250 copies. Think we will want more later."

Oscar Foss: "Of the 175 copies received from you not one now remains. I have ordered a few more copies, which will, I believe, supply the demand here. If I had ordered 250 copies instead of 175 I should have had no trouble in disposing of them this year."

B. Y. Morris: "I am entirely out of 'Annuals,' and will include in my next order some more."

B. C. Norrell: "My stock is exhausted. I may be able to dispose of more copies."

H. A. Hyatt: "May want about twenty-five more to carry me through the year."

Mullett Bros.: "May want about twelve copies more."

Charles Lawrence: "We are entirely out, and shall need a few more copies."

Zimmerman Bros.: "Have sold twice as many as we expected."

J. C. Sommerville: "We have disposed of 100 copies, and are not certain that we shall require any more."

Douglass & Shuey Co.: "Paper, all gone."

Robert Clark & Co.: "We have none left in stock of the 'American Annual of Photography and Photographic Times Almanac' for 1892."

Kimball & Mathews: "We are about out of the 'Annuals.'"

M. F. King: "I have none of the 'Annuals' left. Could sell a few more, most likely, if I had them."

Wilson-Hood Cheyney Co.: "We have three copies on hand, and shall order in half dozen lots as needed."

W. S. Bell: "We have no 'Times Annuals' in stock."

Barker & Starbird: "We have no over stock of the 'Annuals,' and although we received three separate orders from you, we may be obliged to give you a fourth, in the near future."

McCurdy & Durham: "We have sold all but one copy, and shall probably need more shortly."

Paul Roessler & Co.: "We have not now any of the 'American Annuals of Photography and Photographic Times Almanacs' for 1892, on hand."

Buchanan, Bromley & Co.: "We have on hand 11 copies of the 'Annual.' These will go very easily. If all our goods were as sure sale as these, we would be happy indeed."

J. N. McDonald: "I have no copies of 'The Times Annual' for 1892, in paper. I have ordered a dozen copies more."

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IN THE WOODS

THE PHOTOGRAPHIC TIMES.

VOL. XXII. MAY 20, 1892. No. 557.

"IN THE WOODS."

OUR frontispiece this week is from a negative by by R. Clinton Fuller, the well-known amateur of Providence, R. I. Mr. Fuller will be remembered as the author of the "Night Blooming Cereus," which was presented with this magazine many months ago.

The present picture, though of an entirely different subject, shows the same skill in photographing.

Mr. Fuller combines the artist's taste with the skill of an accomplished photographer. His results are, therefore, always gratifying.

The reproduction was made by G. M. Allen & Co., now "The Alley-Allen Press," by the gelatine process. Our picture last week by the same company was also reproduced by the same process, though by a slip of the pen it was called "a half-tone." The subject of the present picture was found in a park on the outskirts of Providence.

EDITORIAL NOTES.

THE cause or causes of the fading of negatives is now, at last, the object of serious investigations abroad. It should be also in this country. Let our amateur and professional photographers as well as any one using the process in their scientific researches, take the matter in hand. The causes of deterioration being ascertained, the remedy, if there is any, will soon be found. Let them look at their negatives, and if they show any traces of alteration, let THE TIMES know what is at present their appearance, how the negatives were fixed, washed, etc , how they have been preserved, and what is the result of your observations and researches, or process to avoid the defect in question. It is indeed a matter of exceedingly great importance. It is bad enough that our silver positives fade, *our negatives must be permanent.*

WITH the return of the Spring, the photographic excursions commence. Nature is now beautiful; she has dressed herself with *ses plus beaux atours* and the weather is delightful and the light is excellent.

To portray her, use nothing but orthochromatic plates sensitive to yellow and green with a light yellow screen; do not expose shortly, but give plenty of exposure, and, by scientifically developing, you will obtain all the details you want in the lights and shades, brilliant effects and naturalistic pictures.

A MOVEMENT is on foot among Glasgow photographers to adopt a weekly half-holiday for the benefit of their employés. The suggestion is generally well received, most of the firms having agreed to close their doors Saturday afternoon, says the *Photographic News.*

A similar movement should be made in New York and other cities. It is but right that photo operators should have, as every workingman in this republic, a half-holiday before the Lord's day of rest.

IN Europe wood is now employed to manufacture cloth and—food!

It has been found that if, after having cut the wood into thin staves, then into ribbons, these are boiled in a close vessel into a solution of sulphurous acid, one obtains silky, elastic and resistant fibres, a result which is produced by passing the boiled ribbons, which are now free from calcareous salts, through channeled cylinders, from which they come out as long filaments or threads, as it is

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done for cotton, hemp and lint. Hence, before long, we will wear vestments made of wood, and very cheap, too!

On the other hand, a Bavarian, Herr Krug, has devised to make with wood shavings a bread, or, at least, an eatable biscuit, good to fatten cattle.

This new system of panification consists in transforming cellulose into grape sugar (glucose), to which one adds 40 per cent. of wheat, corn, oats, rye, and a small quantity of phosphate. The product thus obtained is said to be superior to oil-cakes and other industrial refuses now employed for the nourishment of animals.

PHOTOGRAPHY ABROAD.

Einsle's Method of Developing.

Mr. Anton Einsle, a member of the Photographic Society of Vienna, states that by the following method of development any case of under or over-exposure times can be met; good, brilliant negatives being obtained whether the plate has been very much under-exposed or exposed a hundred times more than necessary.

The developer consists of two solutions of hydroquinone compounded as follows:

Developer A.

Hydroquinone...	1 gramme	or 16 grains
Sodium sulphite.	30 grammes	or 1 ounce
Sodium carbonate	30 grammes	or 1 ounce
Lead acetate. ...	10 grammes	or 150 grains
Potassium bromide.....	1 gramme	or 15 grains
Water.... .....300 grammes		or 10 ounces

These ingredients are rubbed together in a mortar and dissolved; a slight precipitate is formed, which should be eliminated by filtration.

Developer B.

Hydroquinone..	3 grammes	or 45 grains
Sodium sulphite	30 grammes	or 1 ounce
Caustic potassa.	5 grammes	or 75 grains
Potassium *ferrocyanide*.....	5 grammes	or 75 grains
Water.....100 grammes		or 3⅓ ounces

A acts quite slowly and is adapted to short exposures; B, on the contrary, is very energetic if not diluted.

When the exposure is not known the development should be started with A, and a small quantity of B is then added—no more than one-twentieth of the volume. No fog arises even by prolonged development.

This developing method is appliable both to negative and diapositive clichés.

Developer for Positive Proofs on Silver Chloride Film.

Water..... ....500 grammes		or 1 pint
Sodium sulphite..	25 grammes	or 380 grains
Sodium chloride..	2 grammes	or 30 grains
Acetic acid.....	5 grammes	or 75 grains
Sodium carbonate.	5 grammes	or 75 grains
Hydroquinone....	5 grammes	or 75 grains

By replacing the sodium carbonate by potassium carbonate other tones are obtained.

Brown-black tones are obtained by normal or right exposures; by doubling the exposure and diluting the developer one-half the tones are brown; and by a sextuple exposure and still diluting the developer with water or a little of solution of sodium chloride at 20 per cent. of water, red-brown ton s are obtained.

Abbé J. Coupé.

Toning Without Gold.

Toning without gold, as we predicted not long ago, finds its way everywhere and the process spreads among the *bona fide* photographers ignoring the chemistry of photography.

It is now recommended to tone in a sulphuretting bath (the primordial cause of fading), the prints on albumen paper after washing and fixing them What is the difference in the result? It is wasting time; the tone, whether prints are or not washed, is nevertheless due to the sulphuration of the silver-image just as well as the toning and fixing in one operation of the proofs on their removal from the printing frame.

What a shame! such good processes as the collodio or gelatino silver chloride printing out (aristotypes), which can yield splendid proofs as permanent as those on albumen paper, of course toned and fixed by the old and reliable manner, to be thus spoiled in regard to their keeping quality!

In a short time, when our experiments will be completed, we shall speak about the aristotype processes, hoping that the manufacturers will then discard advocating the sulphuration process for a more photo-scientific manner of toning and fixing. Moreover it will be to their advantage in the end, as the public will soon object to proofs which for the most part fade in the period of a few months.

Development of Plates Purposely Over-Exposed.

We have often advised the readers of The Times to expose for the shadows in the case of landscapes and other subjects lighted by great contrasts, in order to obtain plenty of details, which would

be wanting if the exposure-time had been calculated for the high lights. In thus operating orthochromatic effects will be obtained, not, however, by a good deal as perfect as when employing color-sensitive film and a yellow screen. In the case in question, that is, over-exposure, the development is the stumbling block. It should be conducted by the temptative method, and extreme care should be taken not to let the lights flash out and intensify before the details in the dark parts be developed. A pyrogallol solution weak in the developing agent, to commence with, is, we think, the most appropriate developer. Mr. E. Demole, the able director of the *Revue de Photographic*, published in Geneva, Switzerland, uses hydroquinone and proceeds in the following manner:

The over-exposed is first immersed during one minute in solution at 10 per cent. of bromide and sulphocyanate of potassium, both in equal parts; one rinses the plate and thus commence the development. The formula which so far has given the best results is the following:

Water	2000 grammes, or	62½	ounces
Hydroquinone...	16 grammes, or	147	grains
Sodium sulphite.	120 grammes, or	1850	grains
Caustic potasa...	16 grammes, or	147	grains.

The image develops very slowly; if, on account of the temperature, it developed rapidly, it would not be useful to add some bromide, but the plate should be removed from the bath and this diluted with a certain quantity of water before proceeding. Some practice is certainly necessary to well conduct this operation, for the appearance of the plate is not at all the same as usual; the image has a light tint which rapidly becomes black, but it is difficult to ascertain the exact moment when the developing action should be stopped. The fixing and washings are done in the ordinary manner.

This over-exposing method presents for landscapes incontestable advantages. In the first place the greens, the reds, the yellows are not wholly sacrificed, having all the necessary time to impress the photo-film. From which it results a gradation of tints very nearly nature-like, and which is that obtained by isochromatic plates with a compensating screen. If the development has been well conducted, slowly and carefully, the whites lose but little, they are not harsh, but soft and pleasing to the eye. Lastly, another advantage of this method is that fogging cannot take place. Plates which regularly fog with a very short exposure-time, have given when over-exposed clichés remarkably sharp and brilliant.

It is a fact that, by over-exposing, the less refrangible rays impress to some extent the ordinary photo-films, and, therefore, if the development is well conducted, the image does not present that harshness resulting from the so-called normal exposure-time. Nevertheless, as we have said above, the results are far from being as perfect as when employing orthochromatic films, subduing the action of the most refrangible rays by a yellow screen, and—this is important—exposing for the less refrangible rays, which necessarily implies an over-exposure, so-called, but which in fact is the right exposure.

Orthochromatic plates should be employed to photograph any colored object.

In "Photography," Mr. Evan gives the following table for the comparative value of alkalies in developers:

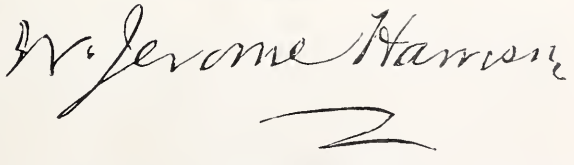
Caustic Soda.	Caustic Potash.	Washing Soda.	Potash, Carbonate (Dry).	Soda, Carbonate (Dry).
80	112	286	140	106
1	1.4000	3.5746	1.7500	1.3250
.7143	1	2.5535	1.2500	.9464
.2797	.3916	1	.4895	5.3706
.5714	.8000	2.0428	1	.7571
.7547	1.0326	2.6981	1.3208	1

By means of this table it is easy to convert any given alkali into terms of any other by multiplying by the given factor; thus: to find how much washing soda must be taken instead of 20 parts of carbonate of potash, we multiply 20 by 2.0428—*i.e.*, we require 40,85 or, practically, 41 parts.

It should be observed, however, that the hydrate and carbonate of potassium act more energetically than those of sodium at equal equivalents.

W. JEROME HARRISON.





We have already published a sketch of Professor Harrison's life in these columns, so that it is only needful now to merely review the leading events of his busy career. The following brief sketch is

taken from *The Town Crier*, one of Birmingham's local periodicals :

William Jerome Harrison—who is a Yorkshireman, by the way—was born in 1845 ; educated as a teacher ; was Sixth Queen's Scholar, 1863 ; Senior Prizeman, Cheltenham College, 1865 ; appointed Head Master of large Boys' School in Leicester, 1870 ; Chief Curator, Leicester Municipal Museum, 1872 ; Science Demonstrator to Birminghan School Board, 1880; trained also at Normal College of Science, South Kensington ; Double Gold Medallist of Science and Art Department ; Darwin Medallist (Geology); Medallist of of the Society of Arts. He was awarded the Barlow-Jameson Fund of twenty guineas by the Geological Society, in 1890, for " Original research in connection with the rocks of the Midland Counties."

Like most busy men he crowds his hours of leisure with fresh work. On Saturdays and holidays during summer he tramps abroad, camera in hand, or joins the pic-nics for posterity's sake, to which Warwickshire of the coming time will owe so much. In winter he turns his hand to text books, with the result that we have from his pen quite a series of short studies on scientific subjects, written to *interest* as well as instruct the beginner. In this way numerous text-books on Geology, Photography, Physiography, Chemistry, Magnetism, and Electricity, Agriculture, Mechanics, Domestic Economy, etc.

Mr. Harrison must be about the best-known man in Birmingham to the rising generation. Science is taught under his direction in every Board School in the city, to teachers and children alike. Since his appointment, in 1880, some 2,000 pupil teachers have passed through his evening classes, and quite 80,000 children have come under his tuition in the upper standards. He has a large staff of assistants, a well-appointed laboratory and lecture-room in Icknield Street, and must, taking one consideration with another, be wielding as potent an influence as any man in Birmingham over the minds of the boys who will in a few years be the backbone of Birmingham.

Prof. Harrison is the author of "A History of Photography," well known on both sides of the Atlantic. He also wrote " The Chemistry of Photography " which recently ran in these columns and which is about to be published in book form by the Scovill & Adams Company.

THE FIFTH ANNUAL JOINT EXHIBITION AT BOSTON, MAY 2-7.

SECOND AND CONCLUDING NOTICE.

(*Continued from page* 251.)

There could be no difference of opinion between the painter or the photographer as to the merits of Mr. Dresser's bromide enlargements, Nos. 592-597, Mr. Lyddell Sawyer's work, Nos. 44-55, Mr. Clement Williams' four large direct prints of seascapes, Mr. Benjamin Kimball's exhibit, and Mr. Stieglitz's wide range of careful and artistic pictures. Had the award of medals stopped with these names, the unsuccessful might have sighed resignedly, "truly the standard is a high one," and rested content. But when Mr. Redfield's work is omitted while Mr. Pancoast's is included, when Mr. Breese and Mr. Dumont get diplomas, while Mr. Hamilton Emmons's Egyptian landscapes, Mr. Loud's Welsh views, and Mr. Briggs's forest studies are preferred above theirs, it must give these gentlemen, as well as ourselves, " cause for special wonder." Mr. Morgan's work, though unequal, would perhaps be carried through on the artistic side by the extremely effective portrait of Mr. Kimball, one of the strongest single things shown. Mr. Blake's instantaneous work is certainly a triumph, but it is *technique*, pure and simple, there is nothing artistic about a locomotive even at a speed of 48 miles an hour. Mr. Todd's " Village Smithy " is also, in another way, largely technical, and in that way very effective, but it is not nearly on the same plane of merit as Sawyer's work.

Undoubtedly the large amount of retouching and working up on negatives and prints detracted from the artistic merits of Mr. Breese's portraits, in the eyes of the Committee, and we can understand their withholding of a medal on these grounds. But the meed of popular approval from the less strict public would go far toward compensating him, undoubtedly.

He certainly has ample precedent in the portraits produced by mezzo-tint engravers, in the softness of the effects which he obtains.

The same criticism would not apply to Mr. Dumont's work ; perhaps the judges may have considered some of his effects rather far-fetched ; but they all display distinct ideas, and great skill in securing and arranging accessories that are in perfect keeping.

If we have succeeded in showing cause for a feeling of disparity in the distribution of the medals, there is still greater opportunity to call attention to the same thing regarding the diplomas,

which are so numerous as to have a complimentary character, rather than a critical one. But perhaps that is a fault inclining to virtue's side; and without attempting to brave the odium of comparisons, brief allusions may be made to the work of the *diplomées*.

Mr. Alexander, of Yonkers, showed four figure studies, and two cloud studies.

Mr. Barton's work consisted of five frames of marine views, of uniformly clean, sharp handling.

Mr. Berg's two frames of "Studies in Draping and Posing" showed distinct improvement over those exhibited at New York last year.

Mr. Breese's exhibit consisted of three single framed platinotype portraits, and a collection of several portraits in carbon; they were all very attractively framed, and one of the features of the exhibition.

Some of Mr. Bullock's prints were seen at the New York exhibition; perhaps the best was 616, "Fahr Wohl."

Miss Emilie V. Clarkson's lantern-slides were adjudged the best, since her diploma was obtained on lantern-slides only, while other exhibitors had prints as well, and diplomas were in all cases awarded "for the entire exhibit." The slide entitled "Moonlight on the Raquette," was the most effective of her series on the screen.

Mr. Clow's work was of good quality, reminding one of his Philadelphia confrerès in subjects and treatment.

Miss E. L. Coleman showed some very interesting work. Nos. 483, "Sheep," and 486, "Marsh and Haystacks," both bromide enlargements, were full of pictorial qualities; and of the smaller prints, 490 *d*. "The Antiquary," and 491 *h*. "Willows at York," were noteworthy. Mr. E. Court Cole's three frames of interiors were exceedingly ample in detail and evinced careful handing in development and exposure.

Mr. Eames' shore views were clean and bright in prints and slides, especially the cloud effects in the lantern.

Mr. Eaton's portraits were rather conventional and professional in effect; No. 385 perhaps the best.

Miss Eddy's prints were characteristically feminine in subjects, but rather flat in treatment; 345 *c*. "The Little Bird Sits at His Door in the Sun," attracted attention. Mr. Fraser's studies of flowers were well rendered photographically, but rather stiff in arrangement.

Mr. French's lens work was, as usual, superb. Mr. Grisdale's tastefully framed exhibit was very attractive, though, perhaps, not sufficiently varied in choice of subject.

Mr. Latimer's Florida views still hold out, and convey almost as good an impression of the localities as an actual visit would.

Mr. John C. Lee's studies of an Italian boy violinist were excellent.

Mr. Moore showed portraits and "darkey" studies, also transparencies. Mr. George A. Nelson, of Lowell, had genre subjects of considerable excellence. Of Mr. Redfield's platinotypes, No. 102, "Morning by the Brook," was perhaps the choicest. Mr. Sherman's work was clean and good in every way. Miss Slade's small views of Dutch subjects secured deserved recognition, No. 238, "A Wool Carder" being especially noteworthy. Mr. John L. Stettinius' work showed great rapidity of lens work and excellent development, "Have Some Sugar, Doggie," No. 213 *c*., was cunning in subject, being one of a series showing a child entertaining her pet doggie at tea.

Mr. James Osborne Wright showed clever versatility and good handling of subjects—256, "Two is Company," a flash-light interior, and 260–2, illustrations for Lowell's poems, were noted.

Of the medaled work, Mr. Francis Blake showed remarkable instantaneous studies of tennis players in action, horses at trot, very sharp; also a portrait of child, and other instantaneous subjects.

Mr. Dresser's enlargements from hand-camera negatives, on Fry's roughest bromide paper, were very stunning; No. 593, "Ploughing," perhaps most effective.

Mr. Hamilton Emmon's seven views in Egypt had a soft and pleasing atmosphere, but were not otherwise remarkable.

Mr. Benjamin Kimball's direct prints were more pleasing than the bromides; 421 and 422, "Rosetti" heads not retouched, were very unusual in lighting and treatment, and entitled to high praise. Of the portraits, Nos. 427 and 433 were noticeable. Mr. Kimball's art training and instincts are readily seen in his sureness of touch, his clear understanding of what he is doing and his realization when it is achieved; and his strivings are largely in other directions than the ordinary amateur chooses; hence, the singularity more apparent than real of some of his poses and lightings. His work was in some ways the feature of the whole exhibition.

Mr. J. Prince Loud's landscapes of quietly mountainous scenery were thoroughly workmanlike in every way and tastefully framed.

Mr. Morgan's portrait of Mr. Kimball, before alluded to, was only one of a number of portraits,

which, while not conventional, showed little straining after effect, and were unusually successful.

Mr. Pancoast's rural scenes, with distant valleys spreading out their inviting slopes appealed to artist and photographer alike ; No. 381, "An Afternoon in the Berkshires," being perhaps representative.

Mr. Lyddell Sawyer's genre subjects, with strong effects of light and shade, were to many a revelation of the scope of photography, before unknown to them. Mr. Stieglitz showed many of the platinotype prints from last year's New York exhibition, all excellent specimens in every way, though not so striking as some on account of their restricted size; 324, "Study in Grey," very excellent.

Mr. Clement Williams' large green carbon prints of sea and cloud-effects were very striking and of great merit. Mr. Briggs' prints, on plain silvered paper, some twenty-four in number, were of uniform excellence, mostly forest scenes ; No. 182, "The Lily Pond," perhaps, the most pleasing.

Among those pictures not premiated we noted 143*h*. "Begging for Sugar," by Mr. T. James Babcock; No. 406, "On the Conemeaugh," by Mr. Wm. H. Rau, of Philadelphia ; No. 36, "A Twilight Melody," by Mr. M. E. Rencurrel ; No. 579, "Portraits," by Mrs. Sarah C. Sears, very dainty pictures of children, the prints very unusual, not to say queer, in tone.

The successful design for diploma was by Mr. Kimball; it is very classic in conception; it shows a figure of a woman in classic drapery seated on a marble bench, with a wall at the back, in a wood; she extends a wreath with one hand, toward the name of the gainer, to be engraved on a blank part of the wall.

The medal, designed by Ibsen, is a real work of art, and those fortunate enough to win it are to be congratulated. The portrait of Daguerre should have been more carefully studied from a better model; otherwise it is entitled to the highest praise; and it is to be hoped that the Boston society's example in this particular will be followed by the other societies in the future.

The catalogue also is by far the most artistic yet produced at any of the joint exhibitions ; the cover is designed by Ipsen, and it has six photogravure illustrations of great merit. These ought to be at a premium, at one dollar, instead of being given away for twenty-five cents ; we advise every one interested, especially every exhibitor, to secure one before it is too late.

In closing this review, it is with regret that the study for it might not have extended over the whole time of the exhibition, instead of being confined to one afternoon and evening ; it takes time to get into the spirit of such a collection and to become familiar with it. Therefore, if hasty or wrong conclusions have been arrived at, they must be attributed partly to that circumstance, the spirit and intention being to further, in every way possible, the interest in and practice of the art that is a common bond of enthusiasm and unity.

C. W. C.

THE CAUSES OF FADING.

II.

In the early days of photography the positive images were all toned by sulphuration, that is, by a fixing bath specially prepared for that purpose ; and that until Davanne and Girard, Hardwich and Spiller, Pollock and Shadbolt, Stas and Monckoven, and other not the least distinguished chemists and investigators had ascertained what was the cause of fading. They found that it is the transformation of the silver image into one in silver sulphite.

It is not certainly out of place to give here, for the instruction of photographers, a succinct account of the processes by which the proofs were toned half a century ago.

A proof on paper sensitized on a neutral silver bath turns to a brick-red color, when fixed directly on its removal from the printing frame, in a new solution of sodium thiosulphate. Such a proof well washed, after fixation, has been found to possess most durable properties. But its color is far from being pleasant, and Blanquart-Evrard, who was in France the propagator of the photographic art, researched if it was not possible of obtaining other and better tones. He found that the proofs fixed in an old bath—one having served repeatedly —passed by a series of tones, varying from brown to black, consequently to impart to a new solution of sodium thiosulphate that coloring property he advised to add to it a certain quantity of a strong solution of silver nitrate.

Continuing his experiments in that direction, Blanquart-Evrard found that the same results were obtained by simply adding a few drops of acetic acid, instead of silver nitrate; that *acetate of lead* caused a fine red-purple color, and that red-brown and fine sepia tones were produced by the addition of aqueous ammonia to an old fixing bath.

By *all* these processes the tone is due to sulphuration, the various tints being the result of a more or less advanced stage of sulphuration, and causes not investigated.

A few years later when the primordial cause of

sulphuration was known, the toning-fixing bath was compounded in a more rational manner to readily yield sulphur. We select a few formulas, published in about 1854:

1. Add 6 drachms of a solution of perchloride of iron to one of 4 ounces of hyposulphite (thiosulphate) of soda in 7 ounces of water, stirring all the time, and when the mixture has become colorless add 30 grains of nitrate of silver dissolved in water.

2. Prepare a bath as said above, leaving out the perchloride of iron, and add 40 grains of nitrate of lead dissolved in 1 ounce of water.

3. Prepare the fixing bath, leaving out both the perchloride of iron and the nitrate of lead, and replacing them by 4 grains of chloride of gold dissolved in 1 ounce of water.

The prints which were the least stable were those which had been toned in a bath without gold, No. 1 and 2, or in a gold bath, prepared some time before use, or acid, the metal having been precipitated as sulphide partly or wholly.

It should not be supposed that the tone of the proofs treated by the bath No. 3 was entirely the result of a deposit of gold. Far from it. It was mostly due to the transformation of the silver into sulphide and very little to gold, which very often was of no use; having been converted into sulphide it could not be deposited on the silver. Gilding by chemical action is always a phenomenon of substitution.

Hence, generally, the photo-image consisted of silver sulphide only.

Now this compound, silver sulphide, in a more or less long period, undergoes when in presence of organic matter, moisture and light, certain isomeric modifications, so much the more complete as the layer is thinner. This is what is termed fading. Perhaps also this phenomenon is due to a thorough transformation of the metallic silver into sulphite, supposing it to be only superficial. It must be acknowledged, however, that no rational explanation has been given. All that we know with certainty is that "silver sulphide, although of a deep brown, or purple, or black color when in deep mass, exhibits a pale yellow tint in thin layer, so that the mere film of silver converted into sulphide possesses very little depth in color. To explain the difficulty it has been suggested that the toning action of sulphur on a red print is probably due to the production of a sub-sulphide possessing intense calorific power, like the sub-oxide or the sub-chloride of silver. When the toned picture is subjected to the further action of sulphur it is converted into the ordinary proto-sulphide of silver and becomes yellow and faded."

This hypothetic explanation of the phenomenon given by Hardwich will not satisfy the chemist who does not admit of the existence of the sub-compounds above-mentioned, specially the argentous sulphide. We think that in the sulphur toning process the silver layer is gradually more or less sulphuretted which is in fact the case, and accounts for the series of tints through which passes the image to attain the deep brown, purple or black color, and that if the sulphuration be then allowed to proceed, the fading commences. This seems probable, if not proven (1) by the fact that if the prints when toned be left for a certain period in the toning-fixing bath, they turn yellow; (2) by the observation that the proofs the less permanent are those which, to take the desired coloration, the longest remain in the said bath, and, which is the consequence, that the proofs toned rapidly, and only to the red-brown color are the most stable; (3) by the gradual changes of color observed in the pictures actually fading, when the whites commence to turn yellow, and the deep brown or purple or black color of the shadow assumes a dirty brown, which by time becomes slightly yellow, the discoloration always commencing by the edges of the picture.

From what has been said in the preceding lines it results that, to obtain proofs of the greatest possible permanence, sulphuration should be avoided, and that, according to the conclusions set forth by the savant investigators we have named, conclusions which the photographer who, for obvious reasons, cannot discard the silver printing processes for those by which absolutely durable pictures can be made, will adopt: the prints should be first toned by a substitution-deposit of gold or platinum, which are metals resisting the oxidizing action of the atmosphere and that of gaseous sulphur compounds, then rapidly fixed * in a pretty strong bath of sodium thiosulphate prepared just before use, that is, renewed every day, for if it be repeatedly employed, it will undergo the changes we have pointed out in the first part of this article, and therefore give rise to products prone to impart sulphur to the prints. Finally the proofs should be rapidly and thoroughly washed.

III.

However the care which one may take in the preparation of the proofs they are not quite permanent. It is because if we can avoid their sulphur-

* The proof is more or less sulphuretted if it remains for a certain period in the fixing bath. Sodium sulphate is formed thus:

$$2\,Na_2\,S_2\,O_3 + Ag_2 = 2\,Na_2\,S\,O_3 + Ag_2\,S + S.$$

ation, we cannot afterwards effectively protect them from the destructive action of the agents which surround them.

These agents are carried in the air and consist of hydrogen sulphide (hydrosulphuric acid), sulphur dioxide, ammoniacal salts, chlorine compounds; sodium chloride is found in the air at a great distance from the sea. All these substances act more effectively in presence of moisture, which is shown by the more rapid fading of the photographs exposed in a damp place. Sunshine also promotes fading.

The most pernicious of these agents are the sulphur gases. And they are those which usually alter the purity of the air in our apartments, being the products of the combustion of coal and of the always not well purified coal gas. They find their way everywhere; every one has observed that even in rooms where a fire is never made nor gas burned, silver wares superficially blacken; the metal has been sulphuretted. It is for this reason that until lately many silverware manufactures and salesrooms were lighted by hydrogen inflamed in contact with platinum sponges. They are now illuminated by electricity.

After reading the preceding lines one naturally asks why the gold-toned proofs fade, since they are covered by a deposit of a metal inoxidizable and not altered by hydrogen sulphide. It should be remarked that the quantity of gold deposited on a picture is less than one six-hundreth part of one grain per square inch.†

The yellow coloration of the whites of fading proofs is also due to sulphuration. There is no doubt that the organo silver compound is not entirely eliminated by fixing. The writer has fused several pounds of ashes from the white paper of fixed proofs, and found, by washing, only a few grammes of metallic silver. It is remarkable that, as the whites become tinged yellow, the half tints, and specially the deep shadows, first darken and turn to a brown. And as gold is deposited in proportion so much the greater as the silver reduction is stronger, in the deep shadows of the picture, for example. It follows that in the half tints the layer is so infinitely small that it cannot be an effective protection against the influences of the destructive agents we have named. It is even quite remarkable that the deep shadows remain so little altered when fading has set in.

Various means have been proposed to protect the image from exterior influences. Thos. Sutton has proposed to render the paper impermeable by an immersion in a solution of India rubber in benzine, since moisture is a factor in the phenomenon in question. Monckoven has advised a coating of plain collodion to isolate the image from the contact of the air. Lastly, and that is the process generally employed, one goes over the proofs with an encaustic compounded with parafine.

To revive the faded image, Humbert de Molard has published, in 1847, the process following: Dissolve in 10 c.c. of water 1 gramme of potassium cyanide and 3 grammes of iodine, then add drop by drop a strong solution of potassium cyanide, just enough to discolor the solution. To revive the image, the proof is immersed in water to which per cent. has been added from 3 to 5 drops of the above solution of iodide of cyanogen.

Another process recently published consists of immersing the proof in a solution of

Water	1000 c.c. (one quart)
Saturated solution of mercuric chloride in hydrochloric acid	20 drops.

The image gradually assumes a purple tint. After washing a great vigor is obtained by toning in a strong solution of potassic auric chloride. It may happen that the image bleaches in the mercuric solution. In this case the proof is washed, then immersed in a very diluted solution of aqueous ammonia, into which the yellow color disappears and the image strengthens.*

Other reviving processes are known.

P. C. Duchochois.

† The auric chloride from one pennyweight of pure gold is sufficient to tone, as an average, sixty sheets of albumen paper. We have toned eighty-five sheets, and more, of plain paper to black with the same quantity.

* The Vicomte Vivier has employed a similar process, but for toning the proof (1852).

A FLASH-LIGHT EPISODE.

I WISH some one with a sense of the ludicrous could have witnessed my latest attempt at flash-light work.

The little church where I attend is soon to be abandoned, hence the desirability of photographing the interior as well as the exterior; and when dressed for the Easter festival was suggested a desirable time.

Like so many churches this one has its greatest illumination from a window over the altar. The magnesium light suggested itself to me as the easiest means of combatting the difficulty, but an order for powder was delayed. Now I knew that all advice said "don't," but still I thought I would *try* emptying some of the Scovill cartridges into the lamp. I hadn't any but the small ones, and did not like to attempt taking the picture with them. I *tried* it here with the utmost caution, and all went well, so without great trepidation I decided to risk it.

To take everything at its best I went around to the church early—before the early service. The sexton, a colored brother, was very willing to assist me, and soon we were all posed

William held for a reflector a huge piece of pasteboard discovered in the vestry room. I manipulated the rest. I suggested that he take care for his eyes, for the light would be bright. Like the "sister good and true" of "the new church organ" fame, "I pitched it pretty middlin' high and fetched a lusty tone." A flash, a bang, and I stood empty-handed, but William held the pasteboard. To put out the burning wicks and other spooks before damage was done was of course my first thought, and I was off my perch at once.

William stuck to his post quite indifferent to the possibility of fire. I mildly suggested that he come down and help me, but although I was frantically stamping about he couldn't seem to sense the situation. I had to laugh to see him standing in stolid indifference to everything but holding his pasteboard and wanted to let him stay; but then I realized the fire was getting the advantage of me, and when I found my dress burning, I emphasized the "come down and help me" in a way that he understood. When he said "I thought that was what you wanted to do," it occurred to me how he must have felt his confidence imposed upon—misplaced.

Fortunately, no harm was done. Had I not kept on my gloves I would have been burned. As it was, I suffered nothing more than a slight singeing of my eyelashes and the short alarm.

Between services I made an exposure by daylight, but there was not time enough for a good negative even by the window, the sun then shining upon it made a thoroughly good result possible. It is only a day or two since I succeeded in getting the disabled lamp repaired and the church is still to take.

Lucy D. Baldwin.

THE PHOTOGRAPHERS' ASSOCIATION OF AMERICA.

An Open Letter

To the Members of the Photographers' Association of America and the Photographic Fraternity, by the President of the P. A. of A.

In view of the fact that there is to be a Photographers' World's Fair Convention held in Chicago in 1893, I think it the proper time to commence work. Little did you expect when you elected me as First Vice-President at Buffalo last summer, that I would be now filling the office of President, or perhaps you would have reconsidered your votes, and little did I expect that such would be the case, or I would not have accepted the position under any circumstances. Through the resignation of Mr. Entrekin, as President, it devolves on me to fill that position until the next election of officers, which will be at our next Convention in '93. The position I take with some reluctance on account of the circumstances mentioned. However, with the assistance of the members and officers I shall do my utmost to make the Convention one long to be remembered. Owing to the fact admitted by most every one that Chicago is the Convention City of America, and that we have secured the finest hall that we have ever held a meeting in, there is no reason why it should not be a grand success. We have been liberal in prizes offered; we have covered the field of photography, so that every one can compete, having also arranged for Judges, so that competitors will be responsible for their selection. Our display of photographs will, doubtless, be the finest ever made under one roof. The exhibit will all be on one floor under an excellent light. Our sessions will be short and to the point. All papers will be read only by title—and afterwards published in the journals.

I hope the photographers will take an interest, and commence now to prepare their work for the World's Fair Convention of 1893. I wish to impress this on your minds of making a display of photographs in the World's Fair City at that time and competing for a medal. The attendance will be enormous, not only from this country, but from others. We have the assurance of a fine display of work from Europe, and every photographer should commence now to select negatives, from which to make prints, and bring them to Chicago at this time. It is to your interest to attend these conventions and compare your work with others'. There is no one perfect; one can learn much by comparison. You ean learn in a few minutes what it has taken others months to study out, and therefore improve in your work, which you have got to do to keep up with the fast strides the profession is making. It is an old saying, "That there are none who have original ideas," and I believe it to be true to a certain extent, while you see a great deal of work in photography, that the position of lighting is characteristic of a certain operator. But that person's ideas are based from something he has seen; consequently not entirely original, and that is why I say it is to your interest to get away from home and compare your work with others' and get some of the dust and moth off of

you. "See?" You can tell by visiting galleries, especially in smaller towns, whether they have attended photographic conventions or been around much, by their work. There are some of them using old-style card-stock backgrounds and accessories that were discarded years ago by the more progressive ones.

The officers of this association are at your service, so don't be backward in asking or suggesting anything that will be of interest to the Photographers' Association of America.

Frank A. Place.

Notes and News.

"English Waysides and Cathedral Towns," will be the subject of an illustrated lantern-slide lecture, by the Rev. Dr. E. C. Bolles, of the Society of Amateur Photographers of New York, Friday evening, May 20, 1892.

An Exhibition of Lantern Slides, by the Brooklyn Academy of Photography, was held at the club rooms of the Society of Amateur Photographers of New York, last Friday evening, May 13th.

Geo. M. Allen & Co., photo-engravers, printers and stationers, have consolidated with Chas. K. Alley, forming the Alley–Allen Press 22d Street and Second Avenue, New York.

Geo. G. Rockwood, the well-known Metropolitan photographer, continues to remain at the head in photographing babies and young children. His splendid studio at 1440 Broadway, is daily crowded with his patrons. Mr. Rockwood is one of the few photographers in the country who has a skylight, dressing rooms, and all the conveniences of the studio on the ground floor. Moreover, he is on the principal street of the greatest city on the Western hemisphere.

The "very latest," is the Cane Camera and the Pocket-book Camera.

The Cane Camera consists of an elegant walking stick with ebonized handle, in which the camera is surrounded by a wide silver band, and all necessary apparatus for making photographs. The handle is fitted inside with a neat metal drop shutter, which connects with a spring and pin underneath, and is operated noiselessly with one finger.

The Pocket-book Camera is even smaller. It makes a picture about one inch and a half square, and when not in use, folds up in an ordinary ladies purse about three inches long, about two and a half inches wide, and one-half of an inch thick. The purse is a *bonafide* one with sections for containing silver, postage stamps, cards, etc, beside the section in which the little camera folds up. It is fitted with an excellent quick-working lens, and may be used either with plates, or cut films.

Mr. Louis Prang, of Boston, recently read before a conference of the Normal Art School in Boston, a paper on color in which he took issue with Young, Helmholtz, Von Bezold, Church, Rood, and others concerning fundamental beliefs in the modern scientific theory of color. Mr. Prang quoted the oft-repeated declaration of the scientists that blue and yellow lights produce not green but white, and showed by the aid of the Maxwell rotary disc how this declaration, while true of experiments with a certain particular blue and yellow, is untrue of a combination of the ideal blue and the ideal yellow. For ideal blue he used a blue free from both red and yellow; for ideal yellow a yellow free from both blue and red. His experimental demonstration showed that the scientists' mistake had arisen from too loose a use of the names blue and yellow, these names being applied in every-day parlance to a great variety of impure hues, Following this experiment, Mr. Prang showed by the use of the Maxwell wheel that the typical red, yellow, and blue do, in combination, produce white of low luminosity. The reason why the possibility of this has been denied by scientists lies also in their wrong choice of colors for experiment, using impure instead of pure hues. Next, Mr. Prang considered the scientific claim that yellow and blue cannot be primaries, because yellow can be obtained by the mixture of red and green, and blue by the mixture of green and violet. Mr. Prang showed by other experiments that these statements of results are true, but he also showed that the scientifically accepted inference from these facts is wrong. The red of the spectrum is not a pure red, but one containing a good deal of yellow. When a typical green combines with such a red, the complementary relation is not perfect. There is present an excess of yellow over and above the elements necessary to form white light, and this residue of yellow naturally gives the resulting light a yellowish tinge. Mr. Prang intends to make public an extended account of his investigations and the apparatus he has devised for experiment and illustration.—*N. Y. Post.*

HUNTING WITH A CAMERA.

THE charms of "hunting without a gun" have been dilated on in *Forest and Stream* by one of the most graceful of American writers. That there is a keen delight in it admits of no question. The scenes among which one wanders not only charm at the moment, but, deep graven on the memory, they remain long afterward sources of pleasure. Besides this there is a great satisfaction in the friendly attitude one takes toward all nature. The birds, the beasts, and the flowers no longer appear to regard one as an enemy; one seems to become a part of the life of the woodland or the plain as soon as his hostile intentions cease.

Yet, after all, for the average man, there is something lacking in hunting without a gun. Most of us are formed of very common clay, and we want to bring back from our excursions something tangible, something that others can see, and touch, and talk about. So it is that hunting without a gun appeals chiefly to those whose minds are cast in a mould of great refinement, to whom the spoils of the chase do not constitute the most important part of their outing. It is not likely to become popular with the average sportsman. Something is needed which shall give more tangible results than hunting without a gun, and yet which shall preserve all its delightful features. If we substitute for the gun the camera these conditions are fulfilled.

Every sportsman, every outer, should carry with him a

notebook in which to record the passing history of each day spent afield. This should be as much a part of his equipment as his hat or his shoes. Memory fades quickly, but to read over again the notes of adventures of past days calls to life again a host of buried recollections. But besides the notebooks, the sportman should carry also a camera, for no description, however well it may be written, can ever convey one-half the story told by a picture. The work of photography calls forth all the best qualities of the hunter. Is it difficult to creep within shot of the shy mountain sheep? It is still harder to approach within focusing distance. In working up to large game with a gun the hunter must see that the wind is right; when hunting with a camera the sun as well as the wind must be regarded.

But if successful in making the approach, how much more satisfaction one receives for his labor. If with infinite care and patience he has crept up to a band of elk, or a flock of birds, and has arranged his camera, he can take one exposure after another, catching his objects in different positions and different groupings, securing views of them which perhaps have never before been had, and getting them in all those curious attitudes, which to the inexperienced eye seem awkward and ungraceful, but which the old hunter will at a glance recognize as being the very truth of nature.

The photographing of these wild creatures offers especial attraction because of its difficulty, but the beauties of scenery must not be overlooked, the rare and curious sights which come only to the man who is much out of doors. We have seen recently two interesting photographs which were taken in fun in a cavern in the northern Rocky Mountains, a deep cave worn out under a glacier.

Hunting with a camera is hard work, and like hunting with a gun, it has its disappointments. But the man or woman who carries a camera into the wilds will surely receive an abundant reward in the satisfaction felt in again and again going over the views brought home from the trips made in past years.—*Forest and Stream.*

NOTES ON SOME NEW RAPID ORTHOCHROMATIC COLLODIO-BROMIDE EMULSION PROCESSES.

(*Continued from page* 259.)

In his paper, Dr. Jonas has given an account of the spectroscopic behavior of his colored emulsion. It shows the ordinary increase of sensitiveness in the yellow and yellow-green, and, on account of the addition of the picrate of ammonia, is less sensitive to blue and violet. Observation with the sensitometer show that the eosine or erythrosine-stained emulsions containing an excess of silver show about 21° on Warnerke's sensitometer, when exposed for one minute at a distance of about 10 inches from the standard amyl acetate lamp, and are 350 to 400 times as sensitive as a wet collodion plate under the same conditions.

The exposure is about ⅓ of what would be given with a wet collodion plate, and no yellow screen is necessary in copying paintings, etc. I have found that practically the plates coated with washed emulsion colored by the methods described above are about as sensitive as Wratten's "Ordinary" plates.

Before coating glass plates with emulsion they must be prepared with a suitable substratum of gelatine, or it may be sufficient to simply pass some of the gelatine solution round the edge of the plate.

Dr. Jonas gives the following formula:

Gelatine (white)	5 grammes.
Distilled water	500 c.c.

when dissolved add—

Glacial acetic acid	15 c.c.
Alcohol	15 c.c.

The plates are well cleaned in the ordinary manner usual for wet plates, and are then flowed twice with the above solution, and allowed to dry in a place free from dust.

I find that this solution does not give an even coating, and might be better thinner. It answers, however, very well indeed when applied to the edges of the plate, and can be kept for use as required.

For the coating and development of these color-sensitive emulsions, the light in the dark-room must be red, or such as is used for the most sensitive gelatine plates; yellow light will not do.

The plates coated with these colored emulsions are most sensitive when exposed in a *moist* state. If allowed to dry, they are said to be about ten times less sensitive. I have not tested this, but it seems not impossible to find a method of retaining the sensitiveness of dried plates.

For plates to be coated with the colored emulsion, all that is necessary is to coat the plate with emulsion, place it in the dark slide, and expose just as it is. In using the bath for coloring, I first coat the plate, then wash under a rose after the collodion has *well* set, then flow with, or place in, a diluted color tincture for a few moments to thoroughly and uniformly wet it, then drain, put in the dark slide and expose.

For developing the plates, Dr. Jonas recommends a hydroquinone developer, which seems to be a slight modification of that recommended by Dr. Albert.

The formula is, however, rather complicated:

CONCENTRATED HYDROQUINONE DEVELOPER.

A.

Distilled water	500 grammes
Sodium sulphite	200 " (250 Albert)
Potash carbonate	200 " (250 ")

B.

Hydroquinone	25 grammes
Alcohol (96 per cent.)	100 c.c.

C.

Ammonium bromide	25 grammes
Distilled water	100 c.c.

The concentrated developer is then mixed in the following proportions:

A	150 c.c.
B	5 "
C	7 " (5 Albert)

The proportions of B and C may be varied as necessary, the hydroquinone giving strength, the ammonium bromide clearness, and the carbonate of potash sensitiveness.

The developer for use is made as follows:—

Concentrated developer	150 c.c.
Water	1000 "

The strength may also be varied according to circumstances.

I have used with good results a hydroquinone developer made up of

Hydroquinone	1 part
Sodium sulphite	4 "
Lithia carbonate	1 "
Potassium bromide	5 "
Water	100 "

Also ferrous-oxalate developer as made up by Mr. B. J. Edwards for gelatine plates.

The paramidophenol developer seems very well suited for these plates, and gives clear vigorous results.

Paramidophenol hydrochlorate	1 part.
Sodium sulphite	5 "
Sodium carbonate (anhydrous)	4 "
Water	200 "

First dissolve the paramidophenol in the water. then the sulphite, and finally the carbonate. In this way, there is no precipitate, but if there should be any, it may be redissolved by heat.

This developer gives great density and clearness, and seems almost inexhaustible. One of the plates I have with me was the seventh developed in a few ounces of it; but, as you will see, it is the strongest of the series, and indeed is too strong. After eight plates had been developed, the developer was barely discolored, and would develop many more.

I have also tried pyrogallic acid developer, using the formula for pyro and ammonia recommended by Dr. Eder for a similar process; but though it gave nice soft pictures full of detail, there was a want of the brilliancy and density shown by the paramidophenol. It is likely that different developers may be found most suited for different classes of work.

The plates can, if necessary, be intensified, either before or after fixing with any of the ordinary acid pyro-silver or hydroquinone silver intensifying solutions, or, if extra density is required, by the bromide of copper or mercurial processes.

J. Waterhouse.

(*To be continued.*)

The Editorial Table.

The Principles of the Photographic Lens, simply explained, as a guide to its use by the amateur photographer. London: R. & J. Beck. Philadelphia: Williams, Brown & Earle.

We have received this little pamphlet, which we understand has been attracting a good deal of favorable attention in Europe, on account of the mass of really valuable information, which it contains. It explains in a popular and concise manner the principles underlying the construction of the photographic lens, and gives many useful hints as to the selection of the proper lens for different purposes. The American publishers have received a great many requests for the book, and have decided, while the present edition holds out, to send it entirely free to any photographer, amateur or professional, who will send his name and address.

Frederic Dean, in conjunction with the Scharwenka Conservatory of Music, during May, have Wagner for their subject. This is his seventh course in the history of music, and the series consists of five lectures. The lectures are under the management of John Lavine, 81 Fifth Avenue.

Omega Aristo paper has been reduced in prices as follows:

Size.	Per Doz.	Size.	Per Doz.
3¼ x 4¼	$0 15	5 x 8	$0 40
4 x 5	20	6½ x 8½	60
3⅞ x 5½	25	8 x 20	70
4¼ x 6½	30	20 x 24	4 00
5 x 7	35	20 x 24 per sheet	40

3⅞ x 5½ for gallery use...first $1.75 per gross; second $1.00.

Queries and Answers.

258 A. NORCROSS.—How can I prevent blisters on bromide paper, when they occur during development?

258 *Answer.*—Add a trifle of chrom alum to the ferrous oxalate, but remember you cannot use it in conjunction with any of the organic reducers like eikonogen or hydrochinone; it would act then as an enormously energetic restrainer.

259 CORNELIA T.—As I understand it Hall's intensifier is a compound of ferricyanide of potassium and uranium nitrate. Why could it not be used for the toning of bromide prints and lantern-slides, the same as Brown's solution?

259 *Answer.*—It can, but the whites will never be clear and colorless in either case. Ferricyanide of potassium has the property to harden gelatine very much, and for that reason it is quite impossible to wash out, the colored solution having permeated the film. Dr. E. Vogel, Jr., who proposed the method first, added a considerable amount of glacial acetic acid to the solution, to soften the gelatine, or rather to prevent the red prussiate to harden the film.

If you add enough of acid to Hall's intensifier, it may possibly give the same results as Brown's solution.

260 G. HAMBERGER.—I have bought a Dallmeyer 3 B lens at a bargain price, and like it very much. On the rim of its back lens there are bright metallic protuberances, equi-distant of each other and arranged in this order · · ·

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W. I. LINCOLN ADAMS, Editor.

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Commercial Intelligence.

Messrs. Bradfisch & Pierce, on a recent call, showed us some surpassingly fine prints made on the new perfected Bradfisch paper. This paper seems to be gaining in popularity every day; and it certainly should, as we have never tried a paper that gave us greater satisfaction.

Messrs. Bradfisch & Pierce and the other leading Aristotype paper manufacturers held a meeting at the Metropolitan Hotel, New York City, May 7th, and adopted the following list prices, as the standard for aristo paper:

	Dozen.	Gross.
3¼ x 4¼	$0 20	$1 75
4 x 5	25	2 00
3¼ x 5½	25	2 00
4 x 6	25	2 00
5 x 7	40	3 50
5 x 8	45	4 00
5½ x 7¾	50	5 00
6½ x 8½	65	6 00
7 x 9	75	7 00
8 x 10	90	8 00
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5 x 7 " "	35
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8 x 10 " "	68

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MAY 9th, 1892.

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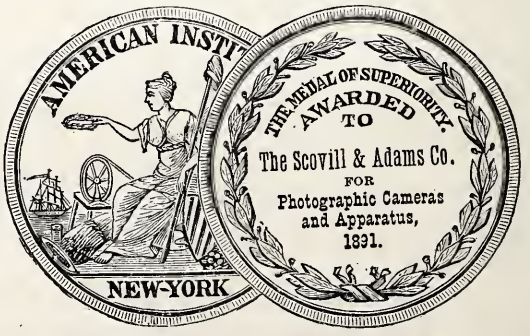
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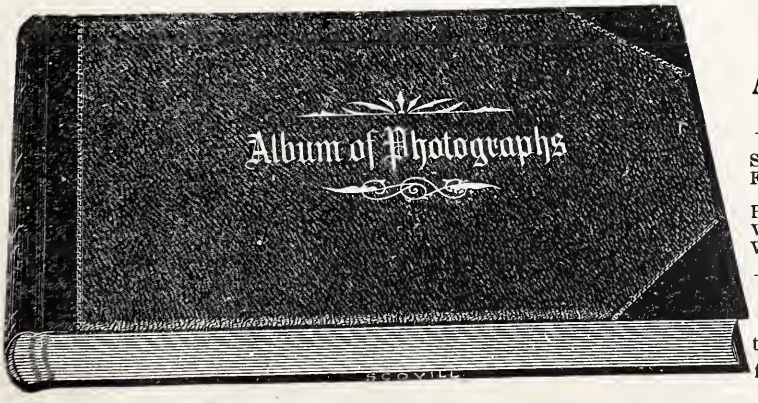
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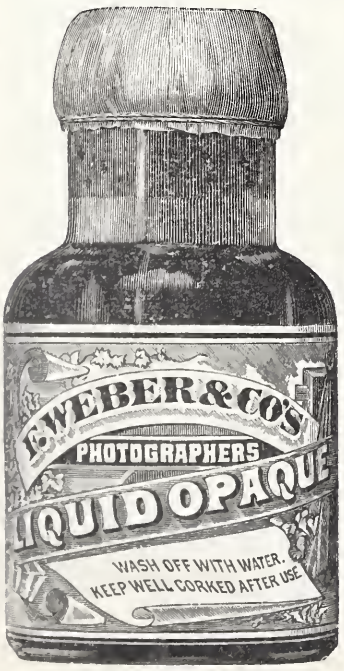
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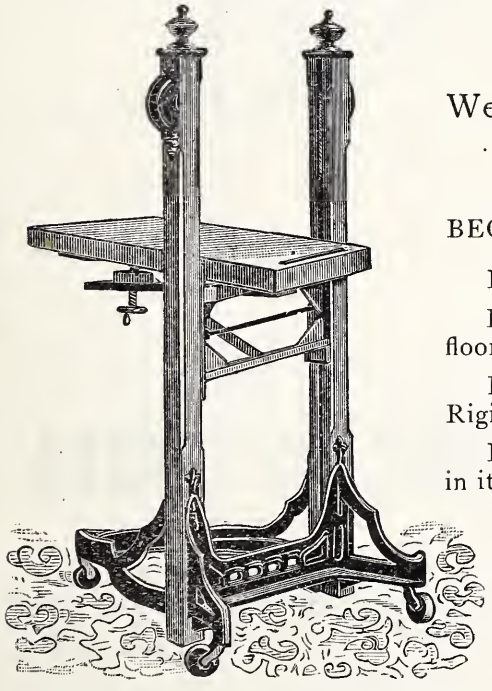
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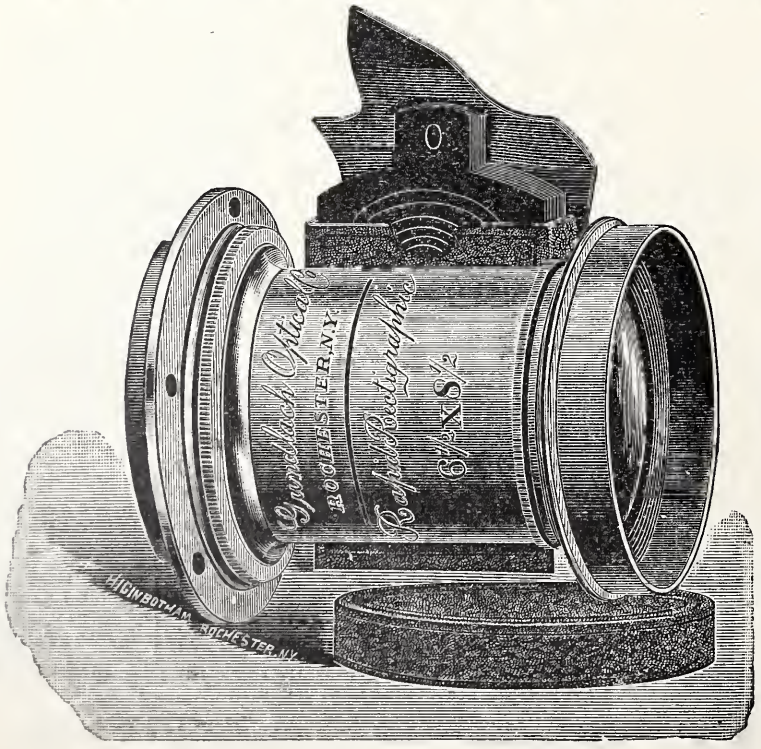
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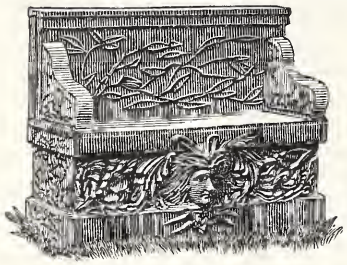
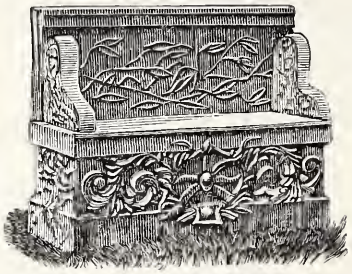
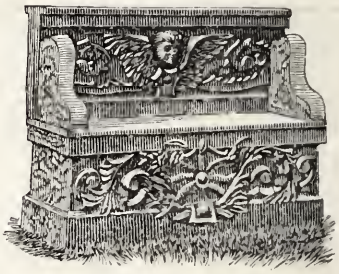
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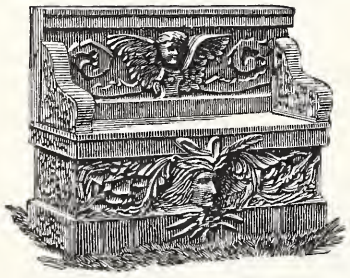
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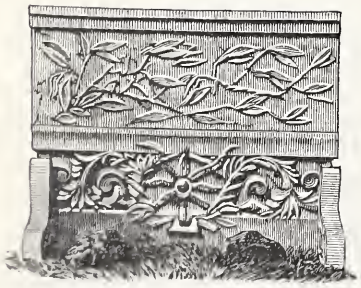
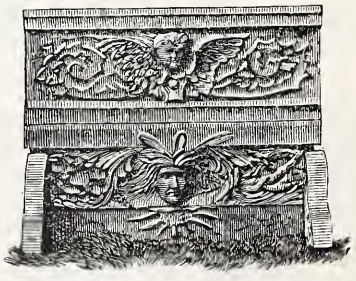
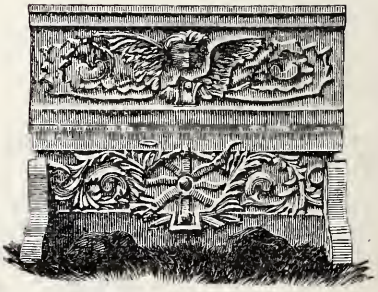
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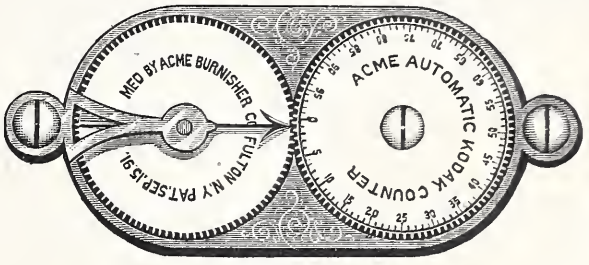
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The **GLOSSY COLORS** are specially prepared for tinting photographs. The list comprises: Cobalt Blue, Cadmium Yellow, Rose Madder, Sepia, Scarlet Lake, Venetian Red and Yellow Ochre.

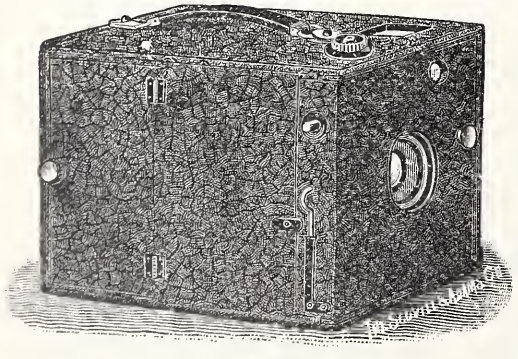
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No. I., the three Retouchers and Whites	2 25	"	
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THE TRIAD CAMERAS.



When a discovery in photography is announced, it is claimed that the new article will displace everything then in use. These claims are seldom justified. There is generally found a place for the new article, if it has any value, and for the old as well.

For commercial purposes, for instance, such as the reproduction of photographs for illustration, it has been demonstrated that collodion "wet" plates are better than dry plates. For the use of the amateur, on the other hand, dry plates are much better than wet plates. Though many new supports have been tried, the sale of glass dry plates is larger now than ever before. Where only a few pictures are to be made on one day's outing it is likely that the experienced photographer will always use dry plates or cut films.

If he is going away for a summer vacation, or for a trip abroad, and expecting to to make a large number of pictures, he will procure a roll-holder loaded with continuous films. This will save him the bother of developing while he is away from home, and of changing plates; but he cannot well know what results he has secured until he has exposed the entire roll and has had it developed

For those who want to use celluloid instead of glass plates, and are not willing to trust to good luck in the exposure of the complete roll of film, we offer with the "TRIAD" camera a *double* film holder which is very light. If the amateur carries six of these holders (loaded with twelve films) he is well supplied for one day · that is, if he is prudent and aims to get only really good pictures. At night, either in a photographic studio or in his own hotel room, the exposed films may be put away into safe receptacles, and another lot of unexposed films substituted for them.

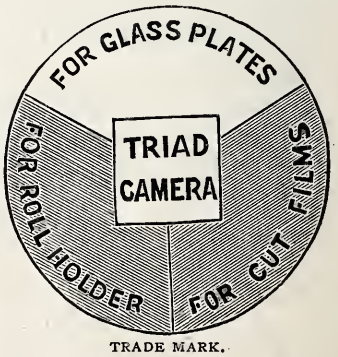
The Triad Camera is fitted with the latest improved Roll-Holder for continuous films, two double holders for glass plates, or two double film holders, if the latter are preferred.

This Camera is fitted with an Instantaneous Rapid Group Lens with easily interchangeable diaphragms —the most satisfactory detective camera lens ever made. It has a finder so constructed that the image is the same as that on the ground glass, though of course it is proportionately diminished in size. Usually the finder in a Detective Camera shows simply the image on the plate, but not its relative size and proportions. The Instantaneous Shutter in this camera is provided with a speed adjuster which works from the outside, and the focusing device and scale are conveniently near the finder. This is very important when one is trying to photograph rapidly moving objects.

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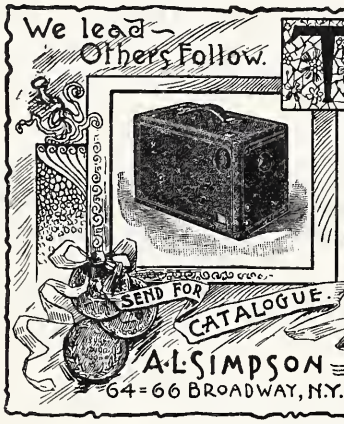
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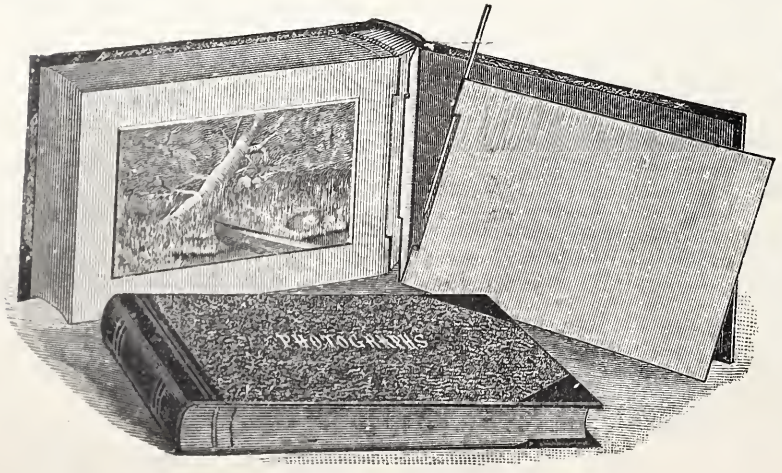
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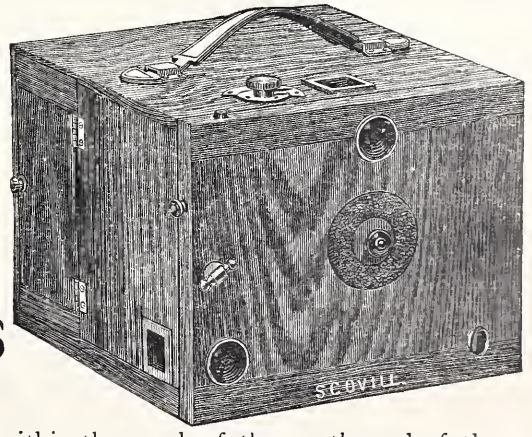
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This Double Combination Instantaneous Lens, with Interchangeable Stops, when bought separately costs as much as the whole camera.

The whole front of this camera is hinged, which is a great convenience. The camera has a Recessed Finder, an Instantaneous and Time Shutter with Speed Regulator, Cap for timed exposures, and one Double Dry Plate Holder.

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No. 1 4x5 Antique Oak, Knack Camera, -	**$15.00**
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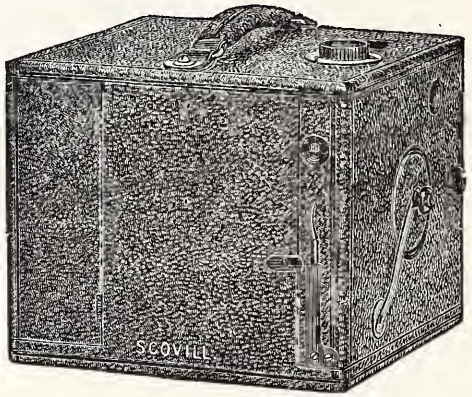
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The only Detective Camera made for plate for tripod, and with ground-glass the full size of the plate, just as in an ordinary view camera. This ground-glass is where it cannot easily be broken.

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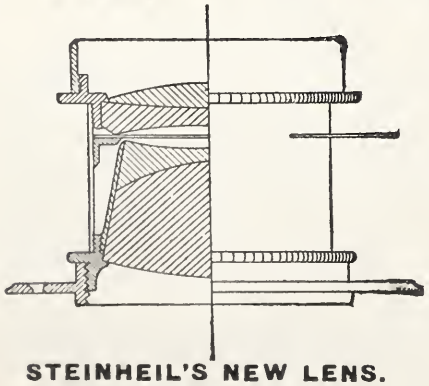
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4 x 5 Waterbury Detective Camera, with 2 Double Holders	$25 00
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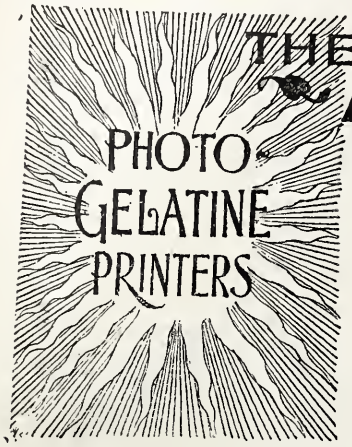
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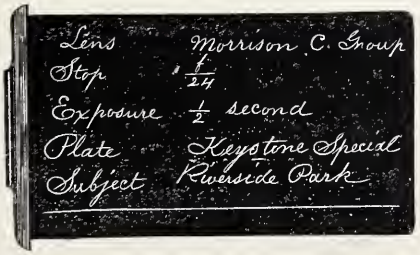
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"Have I or have I not exposed that plate?"
"If exposed, was the plate used for that prized picture?"
"Shall I incur the risk of making a double exposure?"

henceforth will have themselves only to find fault with if they do not procure and use in their dry-plate holders the patent registering slides, or as they have been called "Record Slides." These can be written upon with slate or lead pencil *ad libitum*, and the writing erased without injury to them.

Registering Slides *will be supplied with new American Optical Co.'s Dry Plate Cameras and Amateur Outfits up to* 10x12 *size without addition to price list.*

THE 5 x 7 HENRY CLAY
Stereoscopic Camera
FOR TRIPOD AND HAND USE.



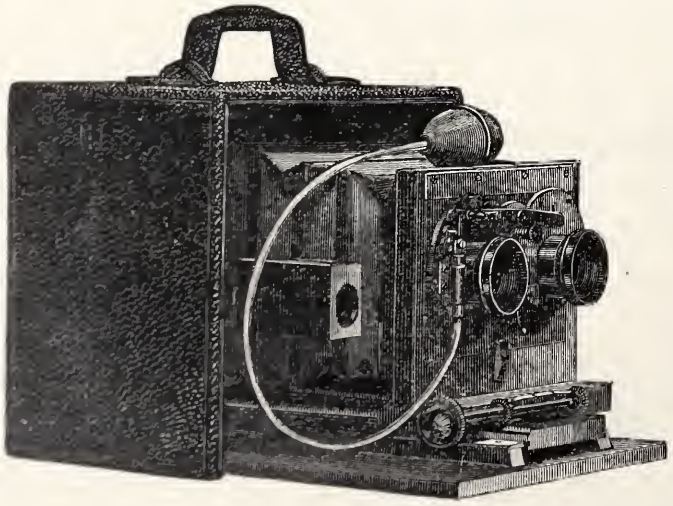
It is commonly known that of all pictures, those which are arranged to give the stereoscopic effect when viewed in a stereoscope, convey the true impression of perspective and solidity. It seems strange, indeed, that of the myriads of instantaneous pictures made, so few are taken with reference to their future use in connection with the stereoscope, *for it is only by that means that the idea of perspective and solidity can be conveyed.* We can only assign as the reason the present almost universal use of hand cameras, and that none of them have, up to this time, been arranged for stereoscopic pictures.

There is a much over-worked phrase—"the long felt want," but we think that just that, literally, will be met by the new hand camera which the American Optical Company have just finished.

The first illustration shows one of these cameras closed, and you will observe there is no external opening for finder, lens or anything to indicate that the leather-covered case contains the appliances which go to make up an instantaneous camera.

This camera measures eight inches high, nine inches long and five inches wide; its weight is about five pounds. It has a screw plate underneath, so that it may be used with a tripod. It has a door in the back of the case, and through that opening the image thrown by the lenses may be seen on the ground-glass focusing screen.

The second illustration shows the appearance of the camera when open. The pair of Optimus Lenses is fitted with a triplex stereoscopic shutter with pneumatic release, made by the Prosch Manufacturing Company.



The camera is furnished with a focusing scale and a reversible finder. Either half of the stereo. negatives when cut in two are of a size suitable for making lantern slides from.

This camera may also be used to take a single picture of the size of the ground-glass focusing screen (5x7 inches), either vertical or horizontal. In the former case the reversible finder comes into use. The septum which divides the camera inside is arranged so that it may be easily taken out, the stereo. lenses are mounted on a removable front, and an extra front is furnished on which may be placed any lens of not over seven and a half inches equivalent focus.

PRICE, with a pair of Optimus Lenses and Prosch Stereoscopic Shutter with Pneumatic Release, ... $75.00

This camera can also be made with vertical sliding and swing front. By means of the former the proportion of sky and foreground may be adjusted; the latter permits the taking of subjects which may be either above or below the level of the camera and still preserve the lines vertical.

PRICE, with a pair of Rapid Rectilinear Lenses and Prosch Stereoscopic Shutter with Pneumatic Release, and with vertical sliding and swing front, . $80.00

A 5x7 Roll Holder for Transparent Films can be furnished with either of the above forms of this camera for $15.00 additional. This addition would make the case about two inches wider and one-quarter inch higher.

THE SCOVILL & ADAMS CO., 423 Broome Street, New York.

How It Sells.

On February 15th, the first edition of 16,000 copies of "The American Annual of Photography and Photographic Times Almanac" for 1892, being nearly exhausted, the publishers issued a circular inquiring concerning the number of books unsold, if any, and also concerning the demand which still existed for the book, with a view of determining the advisability of issuing a second edition. In response to this circular about fifty answers were received, from which the following are quoted at random:

Felix Reifschneider, Jr.: "We have not got one copy of the fifty copies we had. They sold very well, twenty-five the very first day I had them in."

Thos. H. McCollin & Co.: "'The Times Annual' for 1892 is a great success. We have had four lots and have only a half dozen copies on hand. There seems to be a steady demand for it."

W. C. Russell: "Have just sold out, . . . and will say I have never yet been stuck by having any of the American Annuals left on hand."

F. Hendricks & Co.: "We have on hand only five copies to-day of 'The Times Almanac.'"

Sweet, Wallach & Co.: "We have disposed thus far of over 250 copies. Think we will want more later."

Oscar Foss: "Of the 175 copies received from you not one now remains. I have ordered a few more copies, which will, I believe, supply the demand here. If I had ordered 250 copies instead of 175 I should have had no trouble in disposing of them this year."

B. Y. Morris: "I am entirely out of 'Annuals,' and will include in my next order some more."

B. C. Norrell: "My stock is exhausted. I may be able to dispose of more copies."

H. A. Hyatt: "May want about twenty-five more to carry me through the year."

Mullett Bros.: "May want about twelve copies more."

Charles Lawrence: "We are entirely out, and shall need a few more copies."

Zimmerman Bros.: "Have sold twice as many as we expected."

J. C. Sommerville: "We have disposed of 100 copies, and are not certain that we shall require any more."

Douglass & Shuey Co.: "Paper, all gone."

Robert Clark & Co.: "We have none left in stock of the 'American Annual of Photography and Photographic Times Almanac' for 1892."

Kimball & Mathews: "We are about out of the 'Annuals.'"

M. F. King: "I have none of the 'Annuals' left. Could sell a few more, most likely, if I had them."

Wilson-Hood Cheyney Co.: "We have three copies on hand, and shall order in half dozen lots as needed."

W. S. Bell: "We have no 'Times Annuals' in stock."

Barker & Starbird: "We have no over stock of the 'Annuals,' and although we received three separate orders from you, we may be obliged to give you a fourth, in the near future."

McCurdy & Durham: "We have sold all but one copy, and shall probably need more shortly."

Paul Roessler & Co.: "We have not now any of the 'American Annuals of Photography and Photographic Times Almanacs' for 1892, on hand."

Buchanan, Bromley & Co.: "We have on hand 11 copies of the 'Annual.' These will go very easily. If all our goods were as sure sale as these, we would be happy indeed."

J. N. McDonald: "I have no copies of 'The Times Annual' for 1892, in paper. I have ordered a dozen copies more."

There is not a copy to be had of the Publishers at present.

The entire edition of 16,000 copies is exhausted.

But the demand continues.

Comment is unnecessary.

The Photographic Appetite increases by what it feeds on. The beginner is usually content to start with a modest outfit, but as interest grows the hunger for more artistic results calls for better facilities so that the apparatus must constantly be of a more improved pattern and contain all the latest fixings, till finally the question of improvement is entirely one of the value of the lens.

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$5.

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$15.

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ON THE SUSQUEHANNA CANAL.

THE PHOTOGRAPHIC TIMES.

VOL. XXII. MAY 27, 1892. No. 558.

A VIEW ON THE SUSQUEHANNA CANAL.

THE second picture of our series of the photographs which were awarded diplomas at the Vienna International Exhibition is the pretty landscape from a negative by Mr. Harry B. Reid, Secretary of the New York Camera Club. The view was discovered by Mr. Reid on an outing near York Furnace. The canal runs along the west bank of the Susquehanna River, from Columbia, Penn, to Perryville, Maryland, a distance of forty miles. The scenery is very beautiful along the whole line, with the hills on the west heavily timbered and precipitous, and in places presenting a solid wall of modest heights; and on the east the river with its varying aspect of rapids, pools, and islands, considerably below the level of the canal, so that there is always an extended view. The canal crosses numerous brooks and streams, through aqueducts, and these, with a number of locks, bridges, waste weirs, and lock-keepers' cottages, afford many pretty views for the amateur photographer. The exposure was made September 1st, 1890. Cramer, 40; 6½ x 8½; with Irving view camera.

Mr. Reid had three pictures accepted out of six which he sent in the form of lantern-slides. There were only twenty lantern-slides in all catalogued.

ON THE RECOVERY OF GOLD AND SILVER BY A NEW METHOD.

MR. JOHN R. CLEMONS, of Philadelphia, "an old-timer," who has passed the three-score-and-ten years alloted to man, is still an active worker in the front ranks of the profession. Many valuable formulas, especially those for the printing room, and adopted in daily practice by many American photographers, originated with him. His discovery to tone with the aid of chloride of aluminium has created a sensation, for it is practical in value and it yields splendid results. It will be spoken of in "The Annual" for 1893.

Most important to the economical photographer is the suggestion of Mr. Clemons, to recover gold by means of metallic aluminium from partly spent or old alkaline toning baths. We have tried the method as recommended, and have found it to be reliable, perfect in its action and profitable. Every particle of gold contained in the old solution is reduced to the metallic state, in comparatively much shorter time than with ferrous sulphate, and without the same expense of labor, chemicals, and fuel.

Old and partly used alkaline gold baths still contain a considerable amount of the precious metal, and ever since gold has been used for toning purposes, we have by some means or other, but principally with the aid of ferrous sulphate, reduced these residues to the metallic state. With iron as the precipitant the process is quite tedious, the solutions to be reduced require heating, acidifying, precipitation and filtration, and before metallic gold in utmost purity is obtained a thorough elimination of every particle of iron possibly still present.

With aluminium the matter is easier, all that is necessary is to acidify the old bath strongly with hydrochloric acid and place a strip of aluminium in it. As soon as the metal comes in contact with the solution, tiny gas bubbles begin to arise, slowly at first, but gradually increasing till the whole is in a tumultous state of ebullition. At the same time covers the aluminium with a brownish-black deposit, which when removed with a soft brush, sinks to the bottom of the vessel, and will continue to do so as long as there is a trace of gold present. The precipitate of pure metallic gold need be but slightly washed before it can be redissolved in aqua regia for future toning.

In a similar manner gold may also be recovered from the combined fixing and toning bath, whether it has been compounded with hyposulphite of soda alone or with sulpho-cyanates and hypo combined.

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These baths yield however but little gold, owing to the fact that by repeated use the small quantity of it originally contained is to a great extent if not totally exhausted. But as alongside of gold, silver is also reduced, the process may be made profitable, although it takes much longer time to reduce silver than gold.

When hydrochloric acid is added to either of these baths their constitution is entirely destroyed; for example sulphurous acid will be evolved, and the sulphur separated, will sink down to the bottom. When a strip of aluminium is placed into this liquid, a precipitation like the one previously described occurs, the process going on slower than with the alkaline bath. On account of the abundance of sulphur floating in the solution, and constantly rising from the bottom, it is advised to remove the aluminium, as soon as covered with the deposit, to a beaker containing water, wherein the recovered substances are washed off and collected. The aluminium is returned to the solution, washed off again in time, and so forth, as long as a precipitate occurs.

Simultaneously with the gold a large amount of silver is also reduced from the combined baths, and we have now in our beaker a mixture consisting of metallic gold and silver, and sulphur. To separate these three elements, treat the whole deposit first with dilute nitric acid, when all the silver present will be speedily dissolved. The solution may be added to other silver solutions set aside for rectification. The remaining precipitate can be now dissolved in aqua regia, and after the sulphur has been separated by filtration, be used for toning as afore stated.

But it is not only the gold that can be reduced to the metallic state from its solution, by the action of aluminium, the same effect has been observed when chloride of silver is acted upon by aluminium. When a strip of that metal is placed into chloride of silver, under much diluted hydrochloric acid, gas bubbles will arise apparently from the aluminium, the same as in the case of gold chloride, and the contents of the vessels will be in a state of ebullition after a few minutes, when metallic silver is copiously precipitated. Silver does not, like gold, settle upon the aluminium, but goes down directly. In course of time a stratum of silver is formed upon the chloride of silver and occasions thus an obstacle to the process. For this reason must the silver chloride be stirred occasionally as long as gas bubbles will be observed to arise. When these bubbles have ceased to appear the whole amount of chloride of silver is reduced to the metallic state.

The process requires much longer time with silver than with gold but is equally reliable and profitable.

GLEANINGS FROM OLD BOOKS.

Photography upon Ivory and Wood.

First take a glass positive by the common method, using no substratum, then transfer it to ivory and dissolve the collodion with a mixture of ether and alcohol (the latter in excess). The impressed parts only remain upon the ivory and the picture can be then easily colored.

This same process can be applied to transfer the image upon wood.

Bingham (1860).

Printing upon Ivory.

Very much depends upon the ivory having a smooth surface. There are various ways of obtaining this. A nice surface can be obtained by rubbing the ivory with a piece of wash-leather dipped in putty powder. When polished immerse the ivory in a thin spirits varnish and dry before the fire. Then prepare the following mixture:

French gelatine	½ drachm
Water	1 ounce
Loaf sugar	½ drachm

Coat polished and varnished side of the ivory with the gelatine solution filtered clear through flannel. When dry coat with collodio-chloride of silver, dry and print deep, wash under the tap. Any old toning gold bath will do to tone the picture. Fix in a weak solution of hypo:

Hyposulphite of soda	2½ ounces
Water	20 ounces

D. Duncan (1868).

Photography on Wood.

The surface of the wood, and that only, is imbued with a solution of alum and allowed to dry spontaneously, or at a gentle heat. The entire block is then coated with a mixture of animal soap, gelatine and alum. (We have used the following compound:

Water	100 parts
White soap (castile)	2 parts
Gelatine	2 to 3 parts
Alum	1 part

The solution should be used warm.) When dry, the surface which is to receive the image is placed

for a minute or two in a solution of hydrochlorate of ammonia (chloride of ammonium 2 : 100), and again allowed to dry. It is then sensitized with a bath of nitrate of silver 1 : 5 and dried in the dark. A negative either on glass or on paper is then applied on the surface of the wood in a pressure frame made for that purpose, which allows the progress of the printing to be watched. The image is fixed in a strong solution of hyposulphite of soda, and then washed for five minutes *only*.

The sizing protect the wood from any moisture, and an eight-months' experience has proved that the use of alum, instead of loosening the texture of the wood, gives it a great toughness which is favorable to the engraving.

Lalleman, Engraver (1858).

Spirit Photographs.

Select a very soft sample of glass and on it make a collodion negative of some *spirit*, skeleton, anything you please, and develop with a weak solution of protosulphate of iron and intensify with mercury, wash lightly and flow the negative with a weak solution of *aqua fortis*. Let this remain on the film for five minutes or more, then wash and place the negative in strong sunlight to dry, leaving it exposed to the sun from six to ten hours. As soon as the plate is thoroughly dry, place a white paper under it, so as to increase the strength of the action of light. Having got so far, soak the film in a weak solution of lye, and as soon as the film slides off, wash and let dry spontaneously. The plate is now ready for taking a portrait and, on developing, the previous impression etched on the glass will reappear.

D. T. T. Davis (1868).

Chemical Retouching.

After the negative is fixed and washed flow over it a solution of albumen, 25:100 of water, and when dry coat with very thin, little iodized collodion, sensitize and expose for a few seconds in the camera through the negative, that is, the bare side of the glass facing the light. Instead of ordinary collodion an emulsion can be used with advantage. After exposure, develop and proceed in the ordinary way. This transparency on the negative needs no intensifying and is rarely too intense. The intensity can, however, be reduced with a solution of iodocyanide of potassium.

The advantages of this process are manifold; thus:

Freckles are softened, scratches, pin-holes mollified, heavy blacks toned down and shadows softened. The faintest details in the shadows are increased, preserved, instead of being lost in printing All the under-timed negatives, those with heavy shadows, etc., can be made to yield improved and passable proofs, but experience must be acquired ere you meet with unequivocal success.

D. Duncan (1870).

The failures in this process—and they can spoil the cliché past remedy—arise from the sensitizing and the development, whether acid or alkaline, and whatever be the photo-film employed, which very often produces fogging. The cause may be traced to the presence of minute quantities of sodium thiosolphate retained in the film, specially if the negative is on a gelatine film.

To operate with certainty, and avoid any possibility of spoiling the clichés, it is advisable to coat the negative with a thin collodio-silver chloride emulsion compounded with a small percentage of citric acid, and to print by the continuous action of light (printing-out process), then to fix by flowing a weak solution of sodium thiosulphate, washing, etc.

Thus improved the process can render excellent services specially in the cases of short exposure, under development, and when photographing subjects with great contrast. Negatives are intensified as well as softened by this process.

Encaustic.

Take 2 parts of powdered gum arabic, 5 parts of sugar candi, 10 parts of glycerine transparent soap, grated and dissolved in a very small quantity of water. Add afterwards 10 parts of grated white wax and boil, on a sand bath, stirring continually, in an earthern jar capable of holding five times the mixture. When boiled and well mixed empty into a convenient vessel. Cold, the mixture must have the consistency of a good pomatum.

This encaustic applied on prints gives them on polishing a very fine brilliant appearance, and it is free from any tendency to scratch the surface of the pictures, and preserves them from the fading influences of the air.

Clement Sans (1874).

Artificial Ivory.

An artificial ivory, susceptible of other useful applications, is employed in photography in place of glass and paper. This substance, which possesses some of the properties and the fine texture and polish of true ivory, is known under the name of *Pinson's artificial ivory*. It is a compound of aluminia and gelatine prepared in plates or sheets for photographic use in the following manner:

Sheets of ordinary gelatine are immersed in a bath of aluminia dissolved in sulphuric or acetic acid, in which they must remain long enough to be well impregnated with the liquid and take the necessary thickness and density by the combination of gelatine with aluminia. The sheets are then removed and allowed to dry spontaneously and become hardened, then finally prepared and polished by known means.

J. E. Mayall employs another composition to prepare plates of artificial ivory. It consists in incorporating together two parts of baryta in fine powder and one part of albumen. The paste is passed through cylinders to obtain sheets or plates of various thicknesses.

J. Henry (1865).

Positive Process with Ammonio-Citrate of Iron and Silver.

(*Kallitype forty years ago.*)

I have added, with success, to the process of Sir John Herschel a small quantity of nitrate of silver in the solution of ammonio-citrate of iron. The image is obtained pretty rapidly in the camera obscura, and this paper gives very fine results as positive for direct printing. I vary the tone in developing the picture with a solution of silver, or gold, etc.

The formula I use is the following:

Water saturated with ammonio-citrate of iron	100 parts
Distilled water	100 parts
Nitrate of silver	2 parts

Gustave Le Gray (1852).

THE STUDIOS OF NEW YORK.

VII.

Every one in the profession knows Mr. Oscar G. Mason, the photographer, at Bellevue Hospital, and for twenty-five years the Secretary of the Photographical Section of the American Institute, positions which he holds with so much distinction.* For Mr. Mason is not only a practical photographer of a rare merit, he is also a master in the scientific parts of our art: its optics, its chemistry. His library is that of a scholar knowing very much and, therefore, well aware that he knows very little and must study again and always. "Books are our best friends," says he.

We have seen, among the literary and scientific books owned by Mr. Mason, one of the most complete collection of photographic publications there is in the country: there are nearly *all* the books, periodicals, magazines that have been published in the English language. What a loss if such a valuable photographic library were one day scattered *aux quatre vents!* Referring to that in our conversation, Mr. Mason answered that he will bequeath it to the Astor or Columbia College Library. May he not forget it!

Mr. Mason will certainly welcome any one having researches to make on the old and modern processes, and, for that purpose, put his books to one's disposal, but as he knows the value of the completeness of his photo-library, we doubt very much whether he would consent to lend one; and that is but right: "book lent, book lost," says the proverb.

Mr. Mason has been at Bellevue Hospital since 1868. During the first years he did the work at his own expense. It seems that the doctors did not see, then, the services photography can render to the advancement and diffusion of their art, but Mr. Mason, foreseeing what in the near future will be the help of photography to record with a wonderful accuracy all the phenomena of nature, and specially those pertaining to surgery and medicine—cutaneous diseases, for example, so well photographed by Dr. Piffard—insisted on the establishment of a photographic department to the hospital, and, as he offered his services for nothing and to provide at his own expense all the necessary apparatus, he was, of course, and at once, accepted. Now Mr. Mason charges for what he does.

The work done at the hospital requires a good deal of judgment and practice. There are to be photographed a great variety of subjects, each one requiring different treatment, different lenses (Mr. Mason owns a great many, among which a globe—rectilinear—lens ten inches in diameter, constructed by the late Harrison), and sometimes new apparatus or different arrangements are to be made for special purposes. All these offer no difficulty to Mr. Mason, for he is also a mechanic and possesses all that is necessary for the construction of anything wanted, a screw-cutting lathe with something like a thousand tools, etc. He has lately devised and constructed a flash-light apparatus by which, if necessary, can be projected at a distance of about fifty feet a light sufficiently strong to permit one to expose instantaneously.

* At the meeting of the Photographical Section of the American Institute, which took place on Monday, April 5th, the members of the Section presented to Mr. Mason a watch as a gift commemorating the twenty-five years during which he has held the office of the Secretary of the Section, thanking him for the good services he has rendered to our art during this long period. The writer sincerely regrets not having been informed of this, for he would have cordially contributed to the presentation of the gift in question to prove to Mr. Mason that he also held him in a very high esteem.

The skylight of Mr. Mason's is unlike every other one we have ever seen It is very low, the sidelight has an inclination of about twenty degrees and the top is nearly flat, the walls are painted white, the floor is French gray—no outside obstructions to the light, no reflexion except that from the East River which is about sixty feet below. Therefore, as one should expect, all the light is concentrated, powerful, and very little shadow can be cast on the model, all being soft, diffused.

"It was not built for artistic work," says Mr. Mason, "although any effect of light can be obtained by using suitable screens, but especially for quick work. Patients are weak, nervous and cannot stand a long exposure time. Here I expose for a fraction of a second. My developer is pyro-soda, which is the only one which can be managed with certainty to meet all the exigencies of the many different kinds of work I have to make. As to the printing, it is done on albumenized paper and the images toned by gold-soda. But now everything of importance, which are not to be reproduced by the photo-mechanical process, will be printed by the platinotype. Silver prints are not reliable for permanency." And taking one of the volumes of Snelling's journal, he showed us the illustrations which, forty-five years ago, we admired for the delicacy of details, the gradation, and the tone, and which are now so altered as not to be known again.

Leaving Mr. Mason we met on Third Avenue a talkative and inquisitive photographer of our acquaintance who is always in search of a new situation.

"Halloo! Mr. ——. You come from Bellevue? You have seen Mason? He is well? He ——"

"Yes, yes, Sir."

"He holds a very fine situation, there."

"Yes, very."

"I should like to have it."

"Are you backed by politicians?"

"Of course!"

"Then, you can have it. No wages."

"!!!——" (exit, our friend.)

(*To be continued.*)

We have received several communications in regard to the recent Boston Joint Exhibition, criticising various details of the management from as many different standpoints. These we would be glad to publish, if we thought that any benefit would result. As the writers do not care to have their names mentioned, it practically leaves with us the responsibility of decision. We have tried to be impartial in our review, and think that all essential points are therein covered.

SOME ADVICE ON THE RAPID LIGHTING WITH MAGNESIUM.

(Specially translated for the Times from the *Revue Photographique*.)

We will successively review the best conditions in which one should place one's self to employ with success the magnesic lighting.

1. Source of Light.

At the first outset we will discard the use of magnesium in ribbon, even burned by means of a lamp with clockwork. This lighting is proper to illuminate an interior or make groups by time-exposure, but the light is quite too small of surface and intensity to admit instantaniety. Remain the powder of magnesium used alone or mixed with an oxidizing body. The powder lighted by means of paper or any other source of heat burns slowly, forming a kind of burning firebrand. If, on the contrary, it is projected in a state of great division in a flame offering a surface sufficiently large, it will rapidly burn in emitting a strong light. Most of the magnesium flash-lamps have a grave inconveniency, which consists in this, that the magnesium arrives in the interior of the flame in the obscure and cold cone, so that the greater part of the powder comes out without having been burnt. A small number of lamps gives, nevertheless, a flame sufficiently high to burn the greater part of the magnesium. Another arrangement gives a flame whose surface presents itself in width and not in height; the magnesium is then almost directly blowed in contact with the top of the flame, which is the hottest portion, and almost all is burned.

Notwithstanding these improvements, which we do not contest, we remain very sceptic on the utility of the magnesium lamps. Admitting that the four-fifths of this powder be inflamed, we will always have but a relatively small quantity of burned metal, and therefore a light notably insufficient for pretty large room.

We think it is preferable to make use of the magnesium united to an oxidizing body, first because the light is more instantaneously produced and, on the other hand, one can burn exactly the weight of magnesium which is necessary; lastly, if the oxidizing body is a salt such as the chlorate of potassium, the violet coloration of the flame still render the light more photogenic.

The chlorate of potassium, pure, finely pulverized and quite dry, mixed to its own weight of magnesium in powder, forms an excellent, little expensive mixture possessing a considerable lighting power. One place the wanted quantity on a piece of paper which is lighted with a match; or one

dispose on the combustible mixture a small tuft of gun-cotton which one light with gas-lighting pole.

The weight of the mixture to be employed much varies according to distance of the model from the light, and, also, the size of the room and the nature of the screens. At 1 meter, (39 inches) half a gramme (about 8 grains) will suffice, but it is obvious that only one person can be photographed. At 2 meters, 2½ grammes (38½ grains) will be necessary, and 6¼ grammes (96 grains) at a distance of 3 meters *

2. Arrangement of the Screens.

The luminous source should spring from a height of about two metres from the ground on the side and a little backwards from the apparatus. If this luminous source had to be placed near to the apparatus, one should protect the lens on the side of the light by a screen in order to avoid fogging. Behind the lighting mixture one will place a white cloth or paper at a distance of about one and one-half metre (about 60 inches), and between the flame and the subject a second screen made of tulle, or even of a net-work canvas at a distance of two metres, which has for its object to diffuse the light. Lastly, behind the model, on each side, on the ground, if possible one will arrange either screens, or light objects which do not absorb light.

3. Posing the Models.

In a parlor the best place to make a portrait is one of the corners, or angle, on account of the natural screens. The persons will not be posed too near the wall, for the shadow which will be cast on the wall should be hid under the place they occupy. To ascertain whether the position of the persons is good, and where will fall the cast shadows, one must first extinguish all the light but one which is placed where the magnesium powder will be inflamed. One then sees very distinctly whether the shadows are projected on the wall-side and, if so, the group is arranged in such a way as that inconvenience entirely disappears. The light, in preference a wax candle, is placed in the middle of the group, or, if there is only one, near the face of the model, and the focus is then taken with great ease. The focus is perfect at the moment the flame of the candle is the smallest possible; we recommend this simple manner of taking the focus whenever the light is very weak, for example in the interior of churches. One can take thus a good focus at two hundred metres (about 2624 yards) much quicker than by sunlight.

* *Only* the quantity of powdered chlorate and magnesium wanted for immediate use should be mixed, and this with a wooden tool.

4. Igniting.

Before lighting the mixture, care must be taken to somewhat diaphragm the lens, specially if it is a question of photographing a group, and if one disposes of a large load of magnesium powder. Then it is useful to light the apartment in order to bring the pupils of the eyes to their normal contraction. At this moment one removes the slide of the plate-holder, lights the paper which must inflame the mixture, and when the latter is about to take fire, one uncaps the lens. If all the care which we have pointed out has been taken, the success is certain, not only once, but always. The only *allea*, is the weight of the mixture to be burned. It is best to use more than less, specially if a diffusing screen is placed in front of the magnesic lighting. Beside it is proper to employ very sensitive gelatino-silver bromide plates.

D.

To this instructive paper we append the observations made by Mr. A. Loude, director of the photographic department at the hospital of La Salpêtrière (Paris), on the use of the magnesium flash-light when photographing the sick, observations which he communicated to the French Society of Photography at the meeting of February 5:

. . . . We are persuaded, says Mr. Loude, that photography by artificial light will play in the future a great part in the various applications of photography; whatever it may be, it offers to the physician a very great advantage, that to permit of making the photo-operation without having at his disposition a studio specially built for that purpose.

But the sudden apparition of the intense and strong light can cause to the patients the occlusion of the eyes, a modification in the physiognomy, and even a backward movement, in consequence of the surprise or the fright, pretty natural in this circumstance. This is a physiologic phenomenon whose consequences may be serious at the point of view of the exactness of the reproduction.

With certain patients the consequences are still more unexpected. If we have to photograph an hysteric, for example, the magnesium light will instantly put him in catalepsis, and we will obtain altogether another result than that we were looking after.

Hence, we must *a priori* use a source of light whose combustion is sufficiently rapid to obtain the proof before the patient has the time to react.

With a lamp burning pure magnesium blowed through the flame of alcohol, and taking as a model an hysteric, we at once conclude that the time of combustion is too slow. The patient is photographed precisely during the passage from the waking state to that of catalepsis. Consequently the the image is blurred, the head and body inclining backwards and the arm falling to follow the general movement of the body.

If, on the contrary, we use the process which consists in burning the magnesium powder mixed with potassium chlorate, and if we repeat the experiment, the time of combustion is so rapid that the patient is photographed in his natural attitude before the sensation had time to react.

As a confirmative experiment we at once project another flash light, and on the second photograph we see the patient in the cataleptic state.

This experiment demonstrates that the duration of the combustion of magnesium, mixed to an oxidizine substance such as potassium chlorate, is infinitely shorter than that of the lamps. Its use is certainly to be preferred in medical photography, and, even, in ordinary photography, for, in a normal subject, the reaction, under the influence of a strong light, gives rise to the occlusion of the eyes.

Notes and News.

The Lynn Camera Club enjoyed its regular Spring outing near Clinton, Tuesday, May 17th.

The Firm of Coe, Briggs & Coit, photographers in Cleveland, O., have dissolved. H. L. Coe, succeeding.

J. Pitcher Spooner, the well-known photographer of Stockton, Cal., has been visiting the East, and called at the editorial rooms of THE PHOTOGRAPHIC TIMES.

The Portland Camera Club held its Second Annual Exhibition from May 14th to 21st, in its new club-house, at Portland, Me. The exhibition was a success in every respect.

John Carbutt, the pioneer dry-plate maker of America, sailed for London on the Inman Steamer "City of New York," Wednesday morning, May 18. He expects to be gone about six weeks. Mr. Carbutt takes a "Henry Clay" camera with him.

It is announced that the Pope has directed that specimens of the beautiful mosaic pictures, made at the mosaic works in the Vatican, shall be exhibited at the Exposition, and that at least one picture shall be made expressly for the Fair.

Miss Catharine Weed Barnes sailed for Europe, Thursday, May 19. Miss Barnes expects to be gone until the 1st of October, attending the Convention at Edinburgh, where she will read the paper, and making an extended trip with her camera. She expects to expose about two thousand plates during her trip.

Eastman vs. Corona.—Monday, May 23, is the date definitely set for the trial of the suit between the Eastman Company and the Corona Company, both of Rochester. The Corona Company, it will be remembered, is the one consisting of H. M. Reichenbach, S. C. Passavant, and G. D. Milburn, all of whom were formerly in the employ of the Eastman Company.

Geo. B. Case, of New Bedford, Mass., sent us a flash-light picture which shows his little boy with his nurse both fast asleep. The maid fell asleep while lulling the little boy, and neither awoke when the flash was made. An Alvan G. Clark lens with the Prosch lamp was used, with the new Para developer, as given in THE TIMES. "It is excellent," writes Mr Case.

The Fourth Spring Exhibition of the Newark Camera Club, which occurred Friday evening, May 6th, was a great success in every way.

The catalogue issued by the club in connection with its regular exhibitions is an interesting souvenir, illustrated with a photogravure from a negative by Mr. William A. Halsey, of the club.

Portrait of Washington.—Mr. J. F. Sachse read a paper on "The Chronological Portraiture of General George Washington," and exhibited a collection of photographic copies, including every authentic portrait, arranged in chronological order, from Peale's first study at Mt. Vernon, in 1772, to that of St. Memin in Philadelphia, in 1798, the last ever made from life, at a meeting of the Photographic Society of Philadelphia, held May 11, 1892.

E. Long, the well-known solar printer, and author of the "Crayon Instructor," has now been a photographer fifty years.

Mr. Long's work has always been characterized by its great durability, and can always be depended upon for permanency, as well as for cleanliness and artistic effects.

"I have prints in my possession," writes Mr. Long, "made before the war, which are as perfect to-day as when made, only being slightly mellowed by time."

Mr. Long is universally esteemed among the professionals, for his personal qualities, as well as for his skill as a photographer.

We wish him fifty more years of usefulness.

Subscription Lantern-Slide Exhibitions.—The popularity of the exhibitions of lantern-slides by the Society of Amateur photographers of New York, and the belief that these exhibitions would be attended by many more persons than have attended them, if the exhibitions were given in a larger hall, and one better adapted to the purpose than the meeting-room of the society, have induced

the board of directors of the society to submit a proposition to the members for holding eight public lantern-slide exhibitions next season on the fourth Friday of each month from October to May, in Chickering Hall. A special committee has been appointed, consisting of T. J. Burton, E. Warrin, and F. Vilmar, which has issued subscription blanks to the various members and their friends. The ordinary revenues of the society will not be sufficient to defray the expense of these public exhibitions, so it is necessary that 250 subscriptions, of $5 each, should be received. Each subscription entitles the subscriber to two cards of admission for each public exhibition, as well as to the scientific meetings of the society. It is requested that the subscriptions be sent in on or before the first of June, that the committee may complete the necessary arrangements.

An Excellent Mat-Surfaced Paper.—The Bradfisch mat-surface paper is the latest novelty in the photographic market. Its excellent qualities have given it a place at once in the printing-room, where it has come "to stay," and be a successful rival to many other papers of the kind.

This paper is coated with an extremely thin stratum of chloride of silver gelatine emulsion, but rich in silver; the film is finer and weaker than that on bromide paper, and therefore perfectly well adapted to draw upon it, or apply aquarelle colors. Owing to the thinness of the film, colors can be laid on, one above the other, before the first applied is perfectly dry, as we are compelled to do with bromide paper. There has never been a better paper made for the photo-engraver's use, who reduces the photographic half-tone to line or stipple by means of pen and ink. Fixed in plain hypo, a mat-surface print is red, from this tone the hand drawing in ink is easily distinguished, and the photographic tone yields readily to the bleaching power of alcohol.

This paper is ready-sensitized and requires no fuming in ammonia, it is even more sensitive to light than its twin brother the Bradfisch Perfected Aristo, tones quickly and with the expense of but little gold. We have toned mat-surface paper in the separate and combined bath, in either case with signal success.

For contact printing the paper will prove to be a serious rival to the bromide paper, and there is no doubt for short exposures, with the application of Valenta's new method of developing chloride of silver printing-out paper, it may take precedence over all others.

We are delighted with the paper, and can heartily recommend it to all interested in mat-surface printing.

PHOTOGRAPHY IN COLORS.

[Lecture by F. E. Ives at the Royal Institution, London.]

MR. Frederick E. Ives, of Philadelphia, yesterday (May 10th) explained to the members of the Royal Institution, at their theatre in Albemarle Street, his invention for the production of Photographs in the colors of nature. As exemplified at the meeting yesterday, the system was applied only to the production of magic-lantern view on the screen, and to similar views seen in a kind of stereoscope which the inventor calls the heliochromoscope; but at his second lecture next week Mr. Ives will explain how, on the same principles, permanent photographs in colors may be produced, though it is admitted that at present this application of the process is so complicated that it can be successfully carried out only by a scientific expert.

Mr. Ives began by reviewing the whole history of the investigations into laws of color, and the possibility of color photography. The original suggestion was made twenty-seven years ago by Mr. Henry Collen, Her Majesty's painting master, whose idea was to make three negatives—one by red light, one by yellow, and one by blue—and to superpose on a white surface the three color prints thus obtained. At that time no method had been discovered of rendering photographic plates sensitive to one color only; but the experiments of Dr. Vogel and others rendered this possible; and Mr. Ives's system really carries out the original idea of Henry Collen, corrected by the later discoveries of Young, Helmholz, Maxwell, and Stoltze in regard to the nature of color sensations, which have proved that the general idea that all colors are based on the three principal colors, red, yellow, and blue, is erroneous.

Mr. Ives's invention not only, he says, recognizes, but definitely represents the application of the Young-Helmholz-Maxwell theory of color vision. It "involves the production of one negative by the joint action of the red, orange, yellow and yellow-green rays, in definite proportions, to represent the effect upon the fundamental red sensation; one by the joint action of the orange, yellow, green and green-blue rays, in definite proportions, to represent the effect upon the fundamental green sensation; and one by the joint action of the blue-green, blue and violet rays, in definite proportions, to represent the effect upon the fundamental violet sensation." The three negatives are produced in a single camera with a single rapid rectilinear lens on a single sensitized plate; but by the insertion of such color-screens as those described, three images are formed, which reproduce the light and shade as it appears to the respective fundamental color sensations; and by means of mirrors these three images are thrown on to different parts of the sensitized plate. From the triple negative a triple positive transparency is made, and the three images are superposed—one with red light, one with green, and one with true violet.

Mr. Ives finally illustrated his system by throwing on the screen a picture of a little girl in a red dress, standing amid foliage, all the natural colors being vividly reproduced. By alternatively leaving exposed only one of the three positives, with its colored glass, he showed separately the elements of which the colors in the pictures were composed, and by removing the positives and combining parts of the colored glasses he gave some startling illustrations of the accuracy of the Young-Helmholz-Maxwell theory of color vision, the red and green in combination producing yellow; while the three colors together formed a pure white. Mr. Ives's invention was, however, even more effectively illustrated by means of the heliochromoscope, in which a triple negative of a flowering geranium produced an impression of the plant in really brilliant and perfectly natural colors.—*London Daily Graphic, May 11th.*

THE CAMERA AFLOAT.

Capt. Josiah W. Lawlor, well known throughout the United States as the "Lone Voyager" is about to sail on another voyage across the Atlantic, in a small boat. This time it is a canvas craft only twelve feet over all. He will sail from Boston June 5th, for Queenstown, Ireland, stopping at the principal points between Boston and St. John.

The tiny craft is named the "Crawford Shoe" and resembles one in shape. It is 12 feet over all, 10½ feet keel, 4 feet beam and 14 inches deep amidships, with flat bottom. She is unsinkable and uncapsizable, or rather will not remain bottom up. Her sails are made of red and white striped goods

No expense has been spared to make her safe, original and unique, and the voyage in some respects will be unparalleled in the history of maritime exploits. Almost all the metal parts of the boat are made of aluminum, that being stronger and lighter than other metal, with less magnetic attraction for compass. The double canvas deck is made so it can be filled with air, so that in a storm it will act as a preventer from capsizing. She has a thin brass rocker keel and a thin rubber bag, that will be secured to the bottom of the boat during a gale, filled with water, so in case of a capsize the weight will tend to bring her back again. The canvas flap around the standing-room is 5 feet high and has an air chamber that will float the rest of the flaps and come to the surface of the water alongside of the boat. This will prevent the water from getting into the boat in case of capsize, and enable the skipper to right her by holding on to it and using his——

Capt. Lawlor carries a "Waterbury" hand camera, specially made for this purpose by The Scovill & Adams Co., and a gross of Carbutt's Keystone orthochromatic plates and films, selected for the purpose by Mr. John Carbutt.

The captain expects to make a great many interesting photographs during his voyage. His nearness to the surface of the sea enabling him to obtain pictures which otherwise would be impossible.

NOTES ON SOME NEW RAPID ORTHO-CHROMATIC COLLODIO-BROMIDE EMULSION PROCESSES.

(*Continued from page 272 and concluded.*)

For fixing I have used hypo; the image clears at once, and a very much shorter washing is necessary than is the case with gelatine.

Over-dense negatives may be reduced with hypo and red prussiate of potash, in the same way as gelatine negatives.

As you will see from the specimens I have brought with me, the entire virtue of the process lies in the colored-sensitizing solution of eosine or erythrosine-silver and ammonium picrate, which was discovered by Dr. Albert. A plate coated with the colored emulsion and exposed for one minute to a colored picture gives a fine, dense, brilliant image, well orthochromatized for the yellow; while a plate coated with the same emulsion, but not colored, and exposed for the same time and developed with the same developer gives only the ghost of an image. This effect is very remarkable, and its cause is not quite clear. You will also see that with the same exposure and development the collodion plates are quite equal to, if not better than, those taken on Wratten's "Ordinary" gelatine plates, either plain or orthochromatized, under exactly the same conditions. It may be mentioned here that the coloring solution given above when diluted to 1 : 10,000 forms an excellent orthochromatizing solution for gelatine plates, though it remains to be seen how they will stand the excess of silver in keeping.

The exact value of the ammonium picrate has yet to be investigated. Dr. Vogel seems to think it unnecessary, but it undoubtedly adds to the orthochromatic effect of the eosine dye.

I am sorry I am not able to show you a more extended series of specimens of work done by the new process, but those I have will, I think, be sufficient to show you its capabilities and possibilities. There is little doubt that the plates may be made more sensitive. The process is certainly a simple one, and, so far as I have yet found, does not require any very special precautions in working. Under the conditions under which we could work it in the office, it would be much cheaper than gelatine, and probably even cheaper than wet collodion, certainly so if unwashed emulsion were used. The saving gained in time would be a further economy. The process is not, however, in its present form, an outdoor process, and is more suitable for copying and studio work. I hope on some future occasion to be able to give further working details; my object at present being more to draw your attention to the capabilities and probable value of this interesting discovery of Dr. Albert's, as applied by Dr. Jonas, which appears as yet to have attracted very little notice in England.

J. Waterhouse.

THE WORLD'S CONGRESS AUXILIARY OF THE WORLD'S COLUMBIAN EXPOSITION.

Preliminary Address of the Committee of the World's Congress Auxiliary on a Congress of Photographers.

The World's Columbian Exposition of 1893 is intended to commemorate the progress of civilization, and be an incentive to further development, not only by displaying the best products of men's thoughts, as shown in material things, but also by bringing together for conference, in a series of Congresses, the leading thinkers, workers and artists of the world. The World's Congress Auxiliary has been organized with the approval and support of the Exposition authorities, and of the Congress of the United States, to have general charge of these Congresses. Audience rooms, sufficient in number and capacity, will be provided by the Directory of the Exposition.

Among the Congresses of the Columbian Exposition of 1893, that devoted to photography should rank high and be, as it undoubtedly will, a permanent benefit to the civilized nations of the earth. The advancement that has been made in photography, and the processes dependent upon it, within the last twenty years has astonished the artists and scientists of the world. By its aid, the astronomer has discovered countless stars and remodeled the map of the starry heavens. It is extensively used in

almost every deparment of art, literature and science. Its future possibilities are too great for any one to estimate.

It is the design of the Committee to have men and women, who have become distinguished in the various departments of the photographic art, and the processes dependent upon it, deliver papers before the Photographic Congresses which shall contain their best thought, and after well-regulated discussions, shall become the property of the World's Congress Auxiliary, and if deemed worthy, be published in the Encyclopedia of proceedings.

The following are suggested as some of the topics which may appropriately engage the attention of the Photographic Congress:

The History and Development of Photography.
The Present and Future Possibilities of Photography.
Emulsion Photography.
Photographic Chemistry.
Microscopic Photography.
Portrait Photography.
The Production of Photographs in Natural Colors.
Photographic Apparatus.
Landscape Photography.
Photographic Mechanical Processes.
The Best, Cheapest and most Rapid Photographic Process for Illustrating Books, Newspapers, etc.
The Latent Image and its Development.
Photo-Legal Photography.
Photo-Medical Photography.
Astronomical Photography.
Amateur Photography.
Photographic Optics.
Orthochromatic Photography.
Carbon Printing.
Silver Printing.
Platinum Printing.
Photography as an aid to Education.
Photography by Artificial Light.
Aerial Photography.
Submarine Photography.
Instantaneous Photography.

The Congress of Photographers will be held in Chicago some time during the month of August, 1893.

The Committee in charge of the arrangements for the various meetings of the Photographic Congress must, of necessity, be composed of persons resident in or near Chicago, to enable them to attend the meetings of the Committee. But to give the Auxiliary the benefit of the advice and counsel of persons skilled in the Art-Science of Photography throughout the United States and the other countries of the world, and to make the Photographic Congress representative of the important interests and topics to be considered, Advisory Councils of the Photographic Congress have been, and will be appointed from time to time.

These Advisory Councils will be composed of persons skilled in this department of Art-Science throughout the world.

It is desired that Photographic Societies and Conventions wherever held, shall send to this Committee the names of such persons as they consider best fitted to represent them, either by the presentation of papers for the Congress, or by taking part in its discussions.

The Committee also wishes to receive suggestions as to methods of work, topics for discussion, and suitable persons to treat special subjects.

The Advisory and Honorary Members of the Congress are particularly requested to interest themselves in this direction, and to make such suggestions as they may deem proper.

JAMES B. BRADWELL, *Chairman.*
GAYTON A. DOUGLASS, *Vice-Chairman.*
C. GENTILE,
MAX PLATZ,
M. J. STEFFENS,
ALEX. HESLER,
W. J. ROOT,
BERNHARD EICHELMANN,
Committee.

NOTE—Inquiries and communications in relation to the proposed Photographic Congress should be addressed to

JAMES B. BRADWELL,
Chairman of the Committee of the World's Congress Auxiliary on a Congress of Photographers.
CHICAGO, Ill., U. S. A., April 19, 1892.

The members of the Advisory Councils of this Department, thus far appointed, are:

ARKANSAS—R. W. Dawson, Little Rock.
CALIFORNIA—S. W. Burnham, San Jose.
COLORADO—W. H. Jackson, Denver.
CONNECTICUT—Chas. Stuart, Hartford.
DISTRICT COLUMBIA—Prof. T. W. Smillie, Smithsonian Institution, Washington.
GEORGIA—C. W. Motes, Atlanta.
INDIANA—W. H. Potter, Indianapolis.
IOWA—A. E. Monfort, Burlington.
KENTUCKY—H. Veasey, Louisville.
LOUISIANA—T. Lilienthal, New Orleans.
MARYLAND—R. Walzl, Baltimore.
MASSACHUSETTS—Frank Rowell, Wilfred A. French, H. G. Peabody, Boston.
MICHIGAN—W. F. Sesser, St. Joseph.
MINNESOTA—T. M. Swem, St. Paul.
MISSISSIPPI—A. L. Blanks, Vicksburg.
MISSOURI—F. W. Guerin, M. A. Seed, G. Cramer, St. Louis.
NEW HAMPSHIRE—W. G. C. Kimball, Concord.
NEW YORK—A. Bogardus, Henry J. Newton, Prof. Chas. Ehrmann, P. C. Duchochois, W. I. Lincoln Adams, Dr. Arthur Elliott, New York; Geo. Eastman, Rochester; Anton Wild, Buffalo; Edw. Bausch, E. Gundlach, Rochester; Catharine Weed Barnes, Albany.
OHIO—Jas. F. Ryder, Cleveland; M. Wolfe, Dayton; Jas. Landy, Cincinnati.
PENNSYLVANIA—Jno. Carbutt, F. Gutekunst, C. R. Pancoast, F. E. Ives, Philadelphia.
RHODE ISLAND—P. H. Rose, Providence.
WISCONSIN—W. H. Sherman, S. L. Stein, Milwaukee; E. R. Curtiss, Madison.
NEW MEXICO—T. Crispell, Las Vegas.
UTAH—C. R. Savage, Salt Lake.
CANADA—J. F. Bryce, Toronto; A. Henderson, Montreal.

FOREIGN.

ENGLAND—Mr. Andrew Pringle, Cromwell House, Bexley Heath, Kent; Mr. W. Jerome Harrison, Board School, Ichmield St., Birmingham; Mr. H. P. Robinson, Winwood, Tunbridge Wells; Captain W. deW. Abney, Chapman Jones, J. Traill Taylor, T. C. Hepworth, London;

Mr. Cimbrano, W. Willis, Camera Club, London; Frank Sutcliff, Yorkshire; Henry Sturmie, Bradford; W. T. Wilkinson, Leicester; Professor Raphael Meldola, London; A. R. Dresser, W. Van Der Weyde, W. E. Debenham, W. Bedford, Camera Club, London.

INDIA—Schapoor Ndhedaar, Bombay; Colonel J. Waterhouse, Calcutta.

AUSTRALIA—W. Barnett, Sydney, N. S. W.

FRANCE—Leon Vidal, 10 Cité Rougemont, Paris; E. A. Audra, 3 Rue Logelback, Paris; J. Davanne, 82 Rue des Petits Champs, Paris; Gaston Tissandier, Societé Photographique Français, Paris; Prof. M. Lippmann, M. Nadar, M. Marey, M. Henry Bros., Dr. Janssen, Paris.

BELGIUM—Jas. Mans, 59 Rue du Mousin, Brussels; Aug. Lemaire, Boulevard du Hainaut, 94 Brussels; Chas. Puttemans, Brussels; S. Maes, Antwerp; A. De Blochouse, Antwerp; Professor Devylder, Ghent; Professor Donney, Ghent.

GERMANY—Mr. Karl Schweir, Weimar; Mr. Friedr. Mueller, 9 Amalien Street, Muenchen; Professor Bruno Meyor, 71 Thuraistrasse, Berlin, N. W.; Dr. Adolf Miethe, Muehlenhausen, 1 Potsdam; Herr Braun, Dornach; Dr. Herman Vogel, Berlin; Cr. F. Stoltze, Berlin; Dr. Liesegang, Duessendorf.

SWITZERLAND—Boissonas, Geneva; Dr. G. Lunze, Zuerich; Dr. Barbieri, Professor Polytechnical Institute, Zuerich; F. Pricam, Geneva.

AUSTRIA—Lieutenant-Colonel and Imperial Councillor, Ottomar Volkmer, Singorstrasse, 1 Vienna I; Imperial Councillor Dr. Ludwig Schramk, Karmehtorstrasse 7 Vienna II; Professor Dr. Jos. M. Eder, Schottenfeldorstrasse, 77 Vienna VII; Chas. Scolik, 48 Piaristengasse Vienna VIII; Carl Srna, Vienna; Professor Jacob Husnik, Prag.

RUSSIA—S. Levitsky, Pantelejemonskaja, 2 St. Petersburg; Constantin, Krzyjanowski Turhon por Kalinosoka, Bergamosco, St. Petersburg.

FINLAND—K. E. Stolberg, Helsingfors.

HOLLAND—H. v. d. Mash Spakler, 4 Westernigplantsoen, Amsterdam; P. Freissinet, Amsterdam.

DENMARK—M. Steenbro Bregade, 20 Copenhagen: Professor L. Denensen, Nyborg.

SWEDEN—Albin Roosval, Wallhallwagen, 27 Stockholm: Professor Dr. N. C. Dunir, Upsala.

JAPAN—Mr. W. K. Burton, 9 Kago Yashiki, Hongo, Tokio; H. Mizno, Tokio; Sacaicho Itchome, Yokohama.

CHINA—Bostwick, Tienstien.

ITALY—Ruffo Antonio duca d' Artalia, Rome; Professor Cav. Giorgio Roster, Florence.

SOUTH AMERICA—E. Spencer, Santiago, Chili; M. Chute, Buenos Ayres, Argentine Republic.

HAWAIIAN ISLANDS—Chas. Weatherwax, Honolulu.

The Editorial Table.

"A Too Short Vacation," by Lucy Langdon Williams and Emma V. McLoughlin. With Forty-Eight Illustrations from their own "Kodak." Philadelphia: Lippincott & Co.

This is an attractive account of a trip abroad told by two young ladies, and illustrated with excellent reproductions from Kodak negatives.

The book is an attractive one, beautifully printed on fine paper, and neatly bound in white cloth. It contains 264 pages of reading matter and illustrations, and will prove a pleasant companion for an idle hour. It will be especially appreciated by amateur photographers.

Through the kindness of the Secretary of the Smithsonian Institution, we have received the reports of the regents of this national institution, for the year 1889 and 1890. Every one interested in abstract science and having access to these reports should not fail to study them. The articles on "Anthropology," "The Ascent of Man," "The Prehistoric Races of Italy," "The Chemical Problems of To-day," and many others of like character, should be attentively read, because of the vast treasure of information they contain.

We have received from Mr. J. R. Smith, of Howard, R. I., four photographic prints on Aristo paper made from exceedingly fine negatives. With the exception of one, the tones are not at all satisfactory, two of them are too red, and one of them a greenish-black with yellow whites. Mr. S. has adopted a method of printing with broad margins and ornamental corners; not new exactly, but novelties very pretty in effect, and probably just the thing to attract the attention of amateurs, especially lady photographers.

The First Number of *Photographic Work*, a new publication just started by Messrs. Piper & Carter, of London, has reached us. They propose to make a concise and complete record of all phases of photographic activity, and state that their endeavor will be to meet the needs of the present busy age, by giving the information concisely, rather than with any superfluous words. In this endeavor they are especially to be commended.

The first issue contains twelve pages of reading matter, and eight pages of advertisements.

The Cassell Publishing Company take pleasure in announcing that they have the honor to be the authorized publishers of "The Writings and Speeches of Grover Cleveland" which they will issue in handsome and becoming style immediately. The collection has been made with the ex-President's permission, by George F. Parker, than whom no one was better equipped for the task. Mr. Parker has kept a complete collection of Mr. Cleveland's speeches and writings, and from these he has chosen those best suited to the purposes of a book. He has done his work with the greatest care and intelligence, and grouped his material according to the occasion of its utterance, so that in one chapter we have "Speeches and Letters accepting nominations," in another "Inaugural Messages and Addresses," on "Civil Service Reform," "Taxation and Revenue," etc., etc. Besides this Mr. Parker has written an interesting introduction and supplied the work with an exhaustive index that will prove invaluable.

Thoughtful members of the political parties will take a deep interest in this volume as representing the public career of one of the greatest political leaders of our time. Many of the documents, letters and speeches constitute, in fact, an important part of the recent history of the country.

GRANDMOTHER'S PICTURE.

My grandmother's picture hangs on the wall,
In its old familiar place,
'Twas painted when she was slender and tall,
And famed for her beauty and grace;
And grandfather still tells, for he ne'er can forget,
How our pretty young grandmother danced the minuet,
Many long years ago.

"Would with my camera I had been there,
To have taken one good 'snap shot,'
And got me a negative, clear and fair,
With never a cloud or a blot.
Dear grandmother, have you that fine toggery yet
That so proudly you wore when you danced the minuet,
Many long years ago?"

But grandmother said, "You fond, silly youth,
Now my eyes are faded and dim;
Gray hairs and wrinkles are not things, in truth,
To humor a boy's foolish whim."
"But, perhaps, when arrayed in that fine satinet,
Your youth will return as you dance the minuet
To the music of long ago!"

Demurely she smiled, and went up the stair
To put on the silken disguise,
While tripod and film I make haste to prepare,
Then start with sudden surprise—
As if stepped from the frame in her rich satinet
My pretty young grandmother danced the minuet
As she did in the long ago!

Can powder and paint have transformed her so?
I scarce can believe what I see.
But grandfather laughs, "She's graceful, I know,
And bonny—your Cousin Marie—
But she can't hold a candle to grandmother, yet,
As she looked when she danced through that slow minuet
With me in the long ago!"

Elizabeth S. Cranson.

Record of Photographic Patents.

474,571. Photographic Plate-holder. John H. Ballman, St. Louis, Mo.

474,708. Solar Camera. John F. Wiest, Huntington, Indiana.

474,833. Photographic Kit. John H. Iden, Bourbon, Ind.

474,850. Process of producing photographs on hard surfaces. Armand-Müller Jacobs, New York, N. Y.

475,084. Camera. Fred. E. Ives, Philadelphia, Pa.

Queries and Answers.

263 A. F. BLAIR.—I have a silver bath made by simply dissolving nitrate in distilled water with a little nitrate of ammonia added. Can I neutralize this bath with carbonate of soda with safety to the bath? In all the formulas I have carbonate of soda and nitrate of ammonia are not used together.

263 *Answer*.—You can use the carbonate of soda with perfect safety.

264 FREEHOLD has made chloride of gold by dissolving pure metallic gold in sheets in nitro-muriatic acid, and according to the advice given in "Photographic Instructor," third edition, but finds an unusually large amount of alkali necessary to neutralize the gold solution sufficiently to serve as a toning agent for albumen paper, and what is still more annoying the neutralized solution turns to a purple color very speedily, when its action as a toner is equal to nil.

264 *Answer*.—Your chloride of gold is too acid. We advise to evaporate the solution to dryness, redissolve, evaporate again, and repeat the operation three or four times, when all mechanical adhering acid will be driven off. Nevertheless does chloride of gold react acid as you know. The alkaline toning bath, and especially when the alkali is greatly in excess, will decompose within a few hours, resulting in subchloride and finally in suboxide of gold, neither one of which tones. The purple color is indicative of such change having taken place. But such a bath can be restored again to its original activity by adding to it a few drops of muriatic acid or as much to restore the original yellow color. Neutralize again as in the first instance, and the solution will tone.

265 H. S.—(1) How can I obtain a fine blue-black tone, one that is permanent and will stay blue-black? I use durable silver paper with acetate soda and pure gold solution; obtain just the desired color when through toning, *but* when it comes to the fixing part the prints get a dark-brown color, not exactly objectionable, still I should prefer the darker blue-black color.

(2) I squeegee these silver prints on ferro-plates, but find they will stick to the plate. How can this be avoided? I want to obtain a polish without burnishing.

(3) I notice when drying prints between clean white blotters, they will dry up with yellow stains. Is this, perhaps, hypo, contained in blotting paper.

265 *Answer*.—(1) The tone, especially so with ready-sensitized paper, goes always back in the fixing bath. Tone higher, add a trifle of gold to the fixing bath, or use gold chloride containing a little chloride of copper. Or substitute the borax and tungstate bath for that with acetate of soda.

(2) The tin-plate is greasy. Wash it with soap and water before squeegeeing the print upon it.

(3) Your blotting paper may contain injurious chemicals, but more likely have your prints not thoroughly fixed. Let us see some of these stained prints, and we will tell you the cause of the stains.

266 MOHAWK.—I am aware of several books having been published in the German and French languages on photo-grammetry, or surveying by the aid of photography. I am not familiar with these languages and would like to read an English book on the subject. Can you recommend one?

266 *Answer*.—"Photography Applied to Surveying," by Lieut. Henry A. Reed, U. S. A. You can procure it through Scovill & Adams Co.

CHAUTAUQUA SUPPLEMENT

TO THE

Photographic Times.

CONDUCTED BY PROFESSOR CHARLES EHRMANN.

MAY, 1892.

To Miss Emilie V. Clarkson, Miss Elizabeth A. Slade, and Mrs. M. O. Wright, diplomas were awarded at the combined exhibition of Boston. These ladies are all graduates of the Chautauqua School.

NOTICES TO STUDENTS.

The practising class of Chautauqua School of Photography will open on the Assembly Grounds on or before July 1st, at the old headquarters, corner of Pratt and Centre Avenues, in the rear of the post-office building, and will remain in session till the first week in September.

Subjects of instruction: The modern gelatine emulsion processes in all their bearings. Special attention will be paid to orthochromatic work, with and without ray-filter, to enlargements and reductions, mainly so to the making of lantern slides on dry plates.

Printing methods: Chloride of silver gelatine and collodion paper, albumen, mat-surface silver, cyanotype, bromide plain and toned, and kallitype printing.

Daily practice in studio, laboratory and field, and theoretical instruction on various topics.

Retouching the negative and finishing the print by means of color and brush will not be taught.

One course of 10 lessons, $5.00.

One half course of 5 lessons, $3.00.

Special instruction per hour, $1.00, independent of material and text-book.

Advanced students will please bring with them camera, lens, plate-holders and tripod. The rest of utensils is furnished by the school without charge. Beginners will work with apparatus belonging to the school.

All students intending to join the practising class would do well to secure a class number before the Assembly Grounds are open. Address the instructor without delay.

Advanced students of the East coming by the Erie railroad should make arrangements to lay over a day at Port Jervis or Susquehanna station. There is an abundance of splendid camera food in that part of the country.

We request again all members and ex-members of the school to assist in making the 1892 Chautauqua Exhibition better than any of previous years. If all will coöperate we may be able to show the good people of Chautauqua that our little institution is progressing in every direction.

Many lantern-slides have been promised, a few have come in, and there is every reason to suppose the school may be able this year to hold independent exhibitions publicly.

Instruction in the corresponding class will be suspended after June 18 till further notice, and after that date communications to the instructor should be addressed to the Assembly Grounds.

The Chautauqua Supplement to THE PHOTOGRAPHIC TIMES will not be issued during the months of June, July and September, but a report of the annual meeting of the School, and that of the Exchange Club, also a synopsis of the proceedings of the Commencement Day, will be published in August.

Students of the Advanced Class will read during the summer term Roscoe's Elementary Chemistry, pages 161 to 265, and in Burton's Optics, the four first chapters. Examination papers will be presented to this class early in autumn.

Harrison's Chemistry will be hereafter the text-book in chemistry, and Roscoe be reserved for the study of carbon compounds or organic chemistry.

Should any member of the Practising Class desire to study Photogrammetry, instruction will be given according to "Photography Applied to Surveying," by Lieut. H. A. Reed, U. S. A.

The school excursion to Panama Rocks of last year having proved to be an eminent success, it is the intention to arrange in the coming season several outings beyond the limits of the Assembly Grounds.

To answer the many inquiries of the meaning of the severally colored seals proposed to bestow on advanced students, we will herewith give the explanation:

The first, the *White* seal, represents, as it were, the light of heaven in its entirety, by its action we all photograph, and do so when and wherever "there is light."

Blue is the most chemically active light ray; to control blue light, and at the same time reproduce other light rays in their natural brightness or tone value, indicates progress in the study of the art-science.

Yellow is the brightest, the most luminous color, but very little active chemically. To photograph yellow we resort to orthochromatic methods, an other advance in photography.

Red is the least active of the spectrum colors. If a Chautauqua student can reproduce red in its various shades and at the same time other colors in their natural brightness, and if he is able to give the theories of color-sensitive methods correctly, he has attained, we think, to all our school tries to instruct in at the present time.

If no obstacle should be encountered, we hope to begin with the theory and practice of photo-mechanical methods before long.

The following examination papers are rated: No. 494, competing for first diploma, 86 per cent.; No. 560, competing for first diploma, 94 per cent.

Many examinees have not yet responded. We will give them time to do so till July 10th. Papers returned after that date will be laid over till 1893.

The Exchange Club.

The annual meeting and election of officers takes place one day after the recognition day of the C. L. S. C. Members are requested to make nominations, and present them to the present Secretary, Mrs. C. L. Pierce, Elmhurst, Riverside, Conn. The present President declines positively to be a candidate for re-election. Propositions to prescribe a common subject to all exchanging have been made again. To do so will not promote the progress of the club, as experience has proved We are now in a flourishing condition; let us abide by the constitution, and indorse the management of our Secretary.

Eighteen exchanges have been presented in May, less in number than in February, but of better general quality. There are a few excellent photographs among them, the rest of nearly equal merit technically and artistically. There is not one not able to stand upon its merits, not one that might be called a failure, certainly a great progress when comparing this with previous exchanges.

As for general arrangement, selecting and lighting the subject, we place No. 38, *Mrs. L. H. Mull*, in the foremost rank. Her "Avenue of Elms" is a well-chosen view, splendidly illuminated, and developed with much skill; the sunny effects are excellent; the picture is a counterpart of Stillman's "Roman Garden," one of the best illustrations of our "Annual" for '92.

Second, not in quality, but we assign it to that place merely for its small size, is the picture of No. 474, Miss Stella Boardman. It is taken with a Waterbury hand-camera, and represents a pond with innumerable geese and ducks. The background, formed by a steep hill with dense foliage casts a subdued light upon the scene, making the picture very attractive. We are delighted with the success of the fair student.

"Up the River," by No. 489, Miss Ella D. Moore. Independent of its other good qualities, this picture is in regard to photographic technique, one of the best ever presented to the Club. The most severe critic cannot find any fault with it. Sharpness prevails over every part of the picture, the brightly illuminated portions as well as the sombre background of dark fir trees, developed in every detail, and the slightly clouded sky is rendered without any loss of tone gradation. The print is clean, accurately made, and of splendid tone.

No. 281.—R. H. Scadin. Wedding of colored folks "Way Down South." A very fine illustration to the old negro minstrel songs we are so fond of listening to. The picture may rank as one of "Scadin's" best, and all who know his work will understand what that means.

No. 221.—Mrs. C. L. Pierce has chosen a very difficult subject, but she has succeeded admirably well. "A Sunny Corner," flowers and plants in close proximity of a large window, and in a flood of sunlight. Each individual object is splendidly illumined forming a highly impressive *tout ensemble*. Halation is totally absent. The picture was made by double exposure. Well done!

"A Little Tail Piece," No. 495, Miss Lucy Baldwin. Five cats of various ages and sizes around a bowl of milk, taken instantaneously and printed upon cyanotype paper prepared according to Lesson XI. Very good.

No. 207.—Miss M. S. Turner. "Statue of John Harvard," the founder of the University of the same name. Fine photograph, and distinguished by strict sharpness and beautiful detail. Would make an excellent enlargement on bromide paper.

No. 182.—Walter S. Waterbury. Kaaterskill Falls, printed on chloride of silver gelatine mat-

surface paper. From an excellent negative, which prints however, as we know, much better upon mat-surface paper prepared according to Formula 2, Lesson X.

No. 160.—Henry E. Canfield. "Steamer Mohawk" leaving the Chautauqua dock. Fine picture of a subject the students of the practising class have photographed a thousand times perhaps. It is a pity the little sapling in front cuts the steamer in two.

No. 152.—Miss Ella White. "Old Saw Mill." After intensifying we have now a good print from the formerly very feeble negative, and in reality a very fine and picturesque photograph.

No. 225.—Rev. H. Macy. "Ruins of a Building," covered with a growth of vines. We cannot admire this picture very much. No. 225 has made much better, and in fact, very excellent photographs in times past.

No. 195.—Percy Wells. "The Chautauqua Dock." Very good, but Percy ought to have other equally good pictures, without resorting to scenes on the Assembly grounds. Our thanks are due to him for promptitude and faithful adherence to the school.

No. 335.—Miss M. L. Ewen. "Relics of 17th Century," taken with the Waterbury 4 x 5 by timed exposure. Excellent print on Omega paper.

No. 485.—A. Neal. "Irrigating Ditch in Bear Cañon, Colorado" is a very interesting picture, but the negative is fearfully overdevolped so much so, that by first glancing at the print it conveys the impression of a snow scene. Reduce the density with Farmer's solution, and the negative might be valuable yet.

No. 122.—G. W. Hart sent to all the members of the club an illustrated catalogue of the exhibition of the photographic section of the Brooklyn Institute of which he is chairman. The illustrations printed from high relief clichés are partly his own work.

We have yet a few portraits and genres, of which that of No. 469, John Scheide, deserves the first mention. It is a group of "Little Girl and Dog." The girl is not exactly in proper position, but is justified to some extent. The plate is well developed, but it is a pity the print is not as good as might be. Nevertheless we see with much pleasure that John is improving.

No. 439.—Miss Lydia Strawn. Portrait of Miss Parks, the Chautauqua Cornetist. We advise Miss S. to have the face retouched, and she will be able to print a more attractive picture from the otherwise very good negative.

No. 225.—Rev. H. Macy (his February exchange). Were we to cut this group in two, the result would be two very nice little pictures. Why did you not turn the children's heads towards each other. The position and lighting of each individual figure is quite good, as a group it is a failure. The technical work is first-class and the print enormously over-toned.

No. 557. J. C. Carpenter.—"Poor Bessie." Figure of little girl and doll. A very pretty picture, but spoiled entirely by the surroundings of the figures. Has it been the object to make a photograph of the child? the effort is successful to some extent, but as a picture it is a total failure. It is true, in a portrait we do not care to have background and accessories of equal sharpness with the main object, but in this case No. 557 has gone entirely too far, and the result is inharmonious and confusing.

Queries Answered.

No. 470.—(1) Is now ready to resume her studies in the post-graduate class. What shall I read now, she asks?

(2) What is meant by depth of focus? I hear that spoken of frequently in connection with flash-light photography.

Answer.—(1) See "Notices to Students" in this number of the supplement.

(2) Depth of focus is the power of defining upon a plain surface, with sufficient accuracy to satisfy the requirements of artistic ideas, the images situated at varying distances. The use of diaphragms increases it, the smaller the aperture the greater the depths of focus. Or if a group of several persons is taken in an ordinary room, the stop being large, the majority of the persons composing the group may be sharp, but those on the end will not be so, neither will be the background, and will become so only after a small stop has been inserted. Is the group to be photographed by magnesium light, the quantity of magnesium must be increased in proportion to the diameter of the diaphragm. See the lesson "On Artificial Light," "Photographic Instructor," third edition.

No. 489 has attempted to make cyanotype solutions according to the formula of Lesson XI., but when ready to use it, found the ferricyanide of potassium but partially dissolved; nevertheless were the solutions mixed and paper floated upon the mixed solution for 125 seconds and respectively

for 400, but in neither case were the results blue, but of a faint yellowish-brown color.

Answer.—The cause of your failure is simply an insufficient amount of ferricyanide of potassium in the solution. You do not know how much or how little of it had dissolved, from 10 to 15 per cent. of the whole perhaps, not more. We have repeatedly called your attention to the fact that the formula in lesson XI. has been carefully and accurately calculated according to chemical equivalent, and if you follow strictly what has been written, the results will be all that can be desired. But with your solution there was really not enough red prussiate to form Prussian blue under the action of light.

565.—(1) How long may I have the privilege of asking questions? Can I continue to do so after July 1st, and after I have taken instruction on the Assembly ground?

(2) Please give explanation of how to operate with films and roll-holder?

(3) Shall I continue to use Omega paper or do you think it advisable to adopt the albumen?

(4) How many cameras must I have to make lantern slides, to enlarge my 4 x 5 negative, to make cabinet portraits and groups of 12 x 10 inches?

(5) Must the combined toning and fixing-bath be filtered after using it?

(6) Can the lens of a stereopticon be used for making portraits?

Answer.—(1) You are perfectly welcome to everything the Chautauqua School is able to offer. We will answer your questions cheerfully at any time, after examination, and after you have left America to resume your missionary work in foreign lands.

(2) We will show you all that when you come to Chautauqua.

(3) For the present adhere to the Omega.

(4) If you want to print lantern slides by contact, only a small camera like your Waterbury 4 x 5 is needed. Cabinet cards might be made in a 10 x 12 camera intended also for larger work, and the same camera can be so arranged to reduce with it larger negatives to lantern slide diapositives. Producing and enlarging are among the subjects of instruction of the class on the Assembly grounds We hope to have the opportunity to show you all that and a great many other things too.

(5) No. After toning return the bath into the bottle, deposit and all, and keep it so for the next operation.

(6) If it is a good one you can, but probably diaphragms will have to be provided for it

No. 494 wants to know how to prepare photographic copy for photo-engraving in lines.

Answer.—Print the negative upon plain silver paper. Formula No. 2, of Lesson X, will do very well for that purpose, fix in plain and pure hypo, eliminate the fixing agent thoroughly, mount it and draw upon the impression with India ink. The tone of the photograph should be decidedly red, to distinguish well the drawn lines from the photographic ground. The drawing completed, destroy the photographic deposit with an alcoholic solution of bi-chloride of mercury, rinse with two changes of alcohol and dry. The ink drawing is now upon a perfectly white ground and is ready for reproduction.

Make of it a so-called black and white negative on a wet collodion or Carbutt process plate, and develop with para-amidophenol. Print upon a bichromatized albumen film on zinc plate, etch and make ready for the press. You will scarcely do the printing and etching, let a photo-engraver do the work.

It is of the greatest importance that not a particle of a gold-salt is in the fixing bath, and see that the print is perfectly free from hypo, else the photographic ground will not yield to the mercury. Professional men make first an enlarged copy of the original and reduce it then to the size of the cut; by reducing the drawing three or four times, lines or stipple become much finer, appearing often like those of a steel line-engraving.

PICTURES RECEIVED.

No. 470.—Please criticize the flash-light portrait sent.

Answer.—Portrait of young lady and basket of flowers. The figure is much too large for a 5 x 7. The position is good, with the exception of the hands, which are too much forward, and consequently larger than they should be. The flash-light was in proper position to produce artistic effects, but there was not enough of it. The negative is under-exposed, and too feeble to produce a brilliant proof. See Lesson XXIII., "Photographic Instructor," third edition. The retouching is done well. If printed and mounted well the picture might be quite attractive even with its several defects.

WE have received many collections of photographs to be exhibited on the Assembly grounds. For want of space we cannot consider them now, but will criticise them during the summer months in our Chautauqua letters to THE PHOTOGRAPHIC TIMES.

THE PHOTOGRAPHIC TIMES.

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W. I. LINCOLN ADAMS, Editor.

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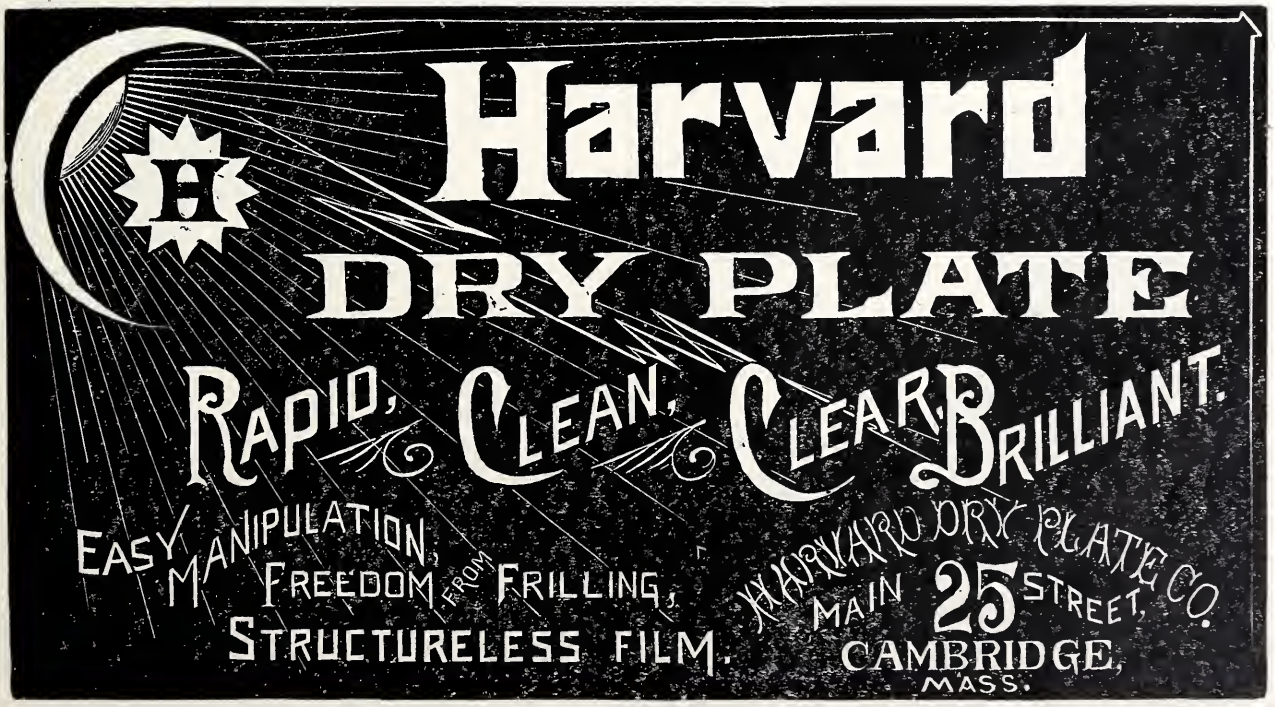
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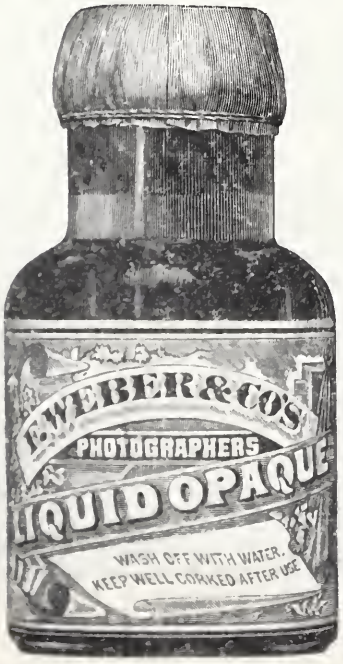
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"The New England Hawk."

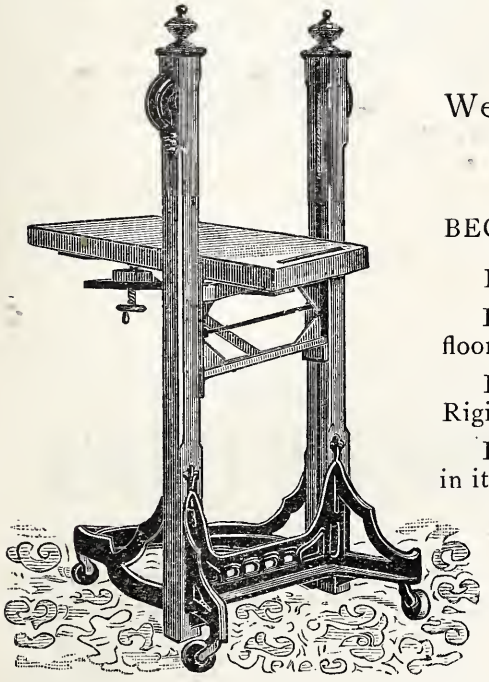
Having purchased the entire production of Frank McLaughlin's New England Hawk Hand-Cameras from the manufacturers, we are now prepared to place this instrument on the market at the remarkable low price of **FIVE DOLLARS** each. The reputation of this Camera is beyond question; it will make pictures 4x5 size, either snap-shot or on a tripod, equal to the best.

Satisfaction guaranteed or money refunded.

Sent to any address, securely packed, on receipt of price, or C. O. D., by

THE SCOVILL & ADAMS CO.,
423 Broome St., New York City.

You want a New Camera Stand?



New England Agents for American Optical Co.'s Apparatus. Best in the world. Send for Price List. : : : :

WHY NOT GET THE BEST?

We claim that **The Semi-Centennial Camera Stand**

BECAUSE— **IS THE BEST.**

It is simple in construction and will not get out of order.

It will enable you to get your Camera within 13 inches of the floor, or as high as you wish from the floor.

It is fitted with turning casters, with rubber wheels. Strong, Rigid, Easy in Operation, and Ornamental in Appearance.

It is the invention of a practical photographer and is perfected in its details. WARRANTED PERFECT.

FOR SALE BY ALL DEALERS.

PRICE, Boxed, $25.00.

NEW ORTHO-PANACTINIC LENS.
H. R. & CO.'S ALBUMEN PAPER.

HORGAN, ROBEY & CO., Sole Agents,
34 Bromfield Street, BOSTON, MASS.

MORRISON WIDE-ANGLE VIEW LENSES.



These lenses are absolutely rectilinear; they embrace an angle of 100 degrees, and are the most rapid *wide-angle* lenses made.

No. of Lens.	Diameter	Size of Plate.	Equivalent Focus.	Price.	
0..1	inch...	3¼x4¼ inch...	2½ inch...	each, $20.00	
2..1	"	...4 x 5 "	... 3½ " ... "	25.00	
3..1	"	...4¼x 6½ "	... 4½ " ... "	25.00	These 5 sizes will
4..1	"	...5 x 8 "	... 5½ " ... "	25.00	fit into 1 flange.
5..1	"	...6½x 8½ "	... 6½ " ... "	25.00	
6..1	"	...8 x10 "	... 8 " ... "	30.00	
7..1½	"	...11x14 "	...10½ " ... "	40.00	These 2 sizes will
8..1½	"	...14x17 "	...14 " ... "	50.00	fit into 1 flange.
9..1½	"	...17x20 "	...17 " ... "	60.00	These 3 sizes will
10..1½	"	...20x24 "	...22 " ... "	80.00	fit into 1 flange.
11..1½	"	...25x30 "	...28 " ... "	100.00	

☞ Nos. 1 to 6 are all made in matched pairs for stereoscopic work. The shorter-focused lenses are especially adapted for street and other views in confined situations. For general purposes, a pair of No. 5 lenses will be found most useful.

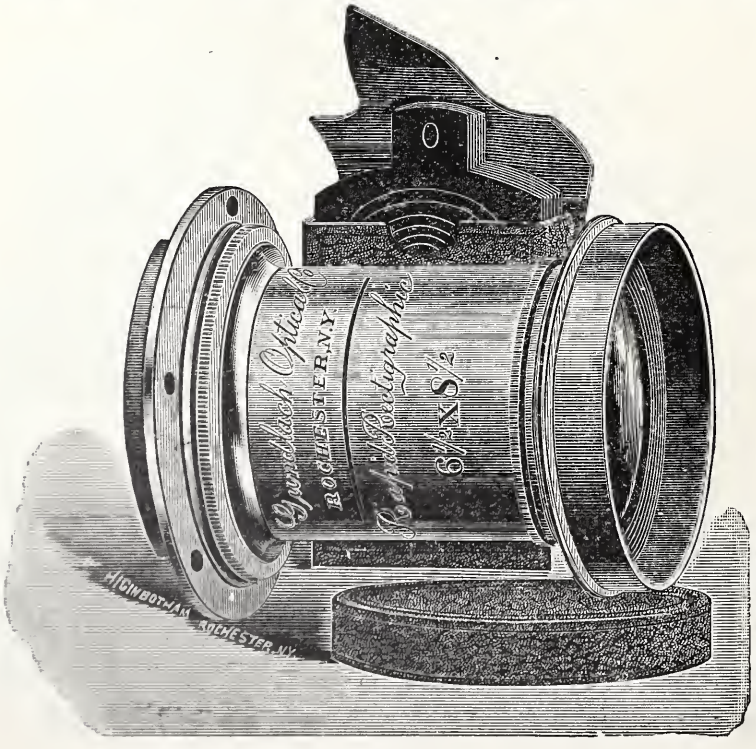
FOR SALE BY ALL DEALERS.

A. M. Collins
Manufacturing Company

would call attention to Dealers in Photographic Supplies to their superior facilities for the manufacture and distribution of Photographic Cards, claiming that they have always in stock, or are prepared to make promptly to order, a greater variety and much larger quantity of Cards of superior quality than any other establishment in this or, perhaps, any other country.

Warehouse, No. 527 Arch Street,
Philadelphia.

GREAT IMPROVEMENTS IN GUNDLACH LENSES.



The *RECTIGRAPHIC* and the *PERIGRAPHIC* are now composed of

TWO APLANATIC TRIPLETS

of a novel form, producing a degree of *Optical Superiority* and *Flatness of Field* which has not been attained heretofore in Photographic Lenses.

The Triplets are of different focal power, and, being perfectly aplanatic, they produce perfect pictures by themselves. Thus the new lenses actually consist of three objectives, which produce images differing in size as 2 to 3 to 4.

Send for descriptive catalogue to the

GUNDLACH OPTICAL CO.,
Rochester, N. Y.

OR TO PHOTO. STOCK DEALERS.

Undoubtedly the BEST!

BP

Perfected Bradfisch Aristotype Paper.

A PERFECT SUBSTITUTE FOR ALBUMEN PAPER.

THIS PAPER prints with negatives of *ordinary* density, and gives *rich* and *brilliant* results, with clear and prominent whites.

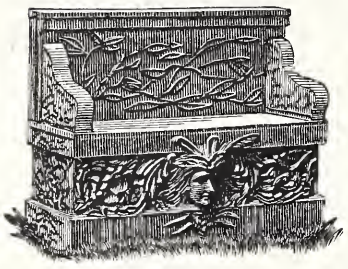
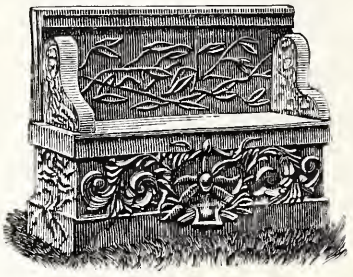
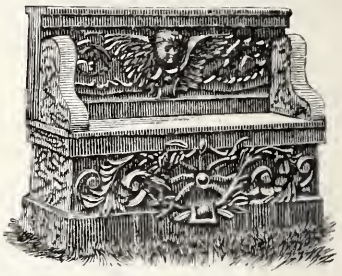
It does *not* stick, nor does the surface of the print rub off.

THE 

is recommended for use with Aristotype Paper.
It works perfectly and is always clear.

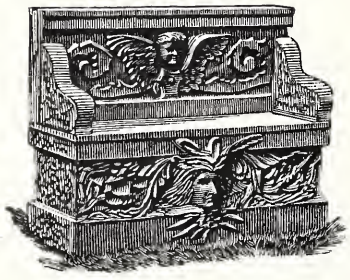
For sale by all dealers in photographic materials, and by
THE SCOVILL & ADAMS CO.

SOMETHING NEW.

The Eldorado

WALL and BENCH COMBINATION.



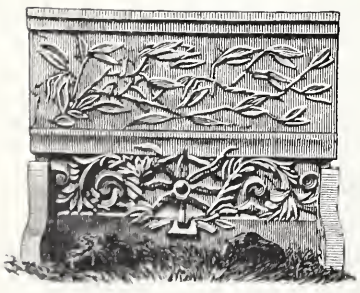
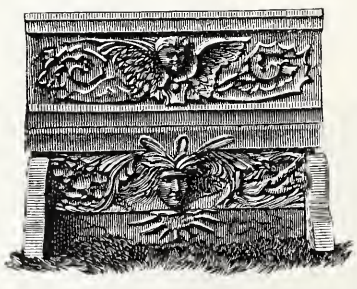
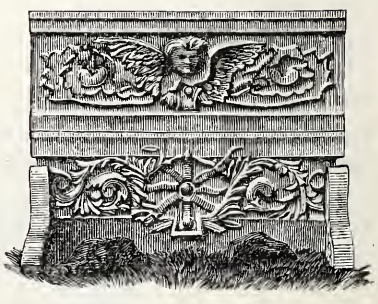
—:—

Makes Eight (8) different Combinations.

—:—

PRICE, - - - - $20.



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THE SCOVILL & ADAMS COMPANY,

423 BROOME STREET, NEW YORK.

Photographic Studies.

SECOND EDITION.

A Collection of Photogravures from the Best Representative Photographic Negatives by Leading Photographic Artists.

THE COLLECTION INCLUDES:

"Dawn and Sunset"..... H. P. Robinson
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"A Portrait Study"..... B. J. Falk
"Solid Comfort"..... John E. Dumont
"Ophelia"..... H. P. Robinson
"No Barrier"..... F. A. Jackson
"El Capitan"..... W. H. Jackson
"Still Waters"..... J. J. Montgomery
"Surf"..... James F. Cowee
"A Horse Race"..... George Barker
"Hi, Mister, may we have some Apples?"..... Geo. B. Wood

Printed on Japan Paper, Mounted on Boards. Size, 11x14, in Ornamental Portfolio.

Price, - - - - - $3.00.

Sent, Postpaid, on Receipt of Price, by

THE SCOVILL & ADAMS CO.

Felt Backgrounds.

The Scovill & Adams' Plain Felt Background, recently introduced, is a great boon to all Photographers, both Professional and Amateur.

It is made of strong, thick and even stock, and is of an agreeable neutral drab color. It is especially suitable for vignetting. The texture of the cloth absorbs instead of reflecting light, and thus produces soft effects, and agreeable depth in print. The liability of defacement by water stains is obviated.

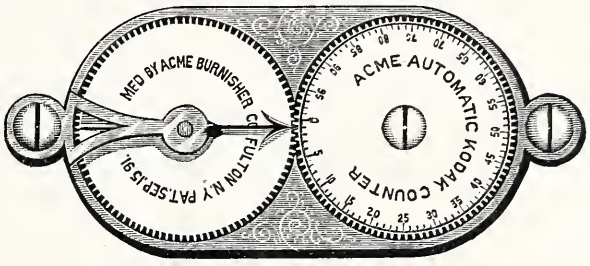
The prices of these grounds are as follows:

4 x 6 feet	$2.50
5 x 6 "	2.75
6 x 6 "	3.00
6 x 7 "	3.50
6 x 8 "	4.00

These sizes may be sent by mail on receipt of 35c. extra.

For Sale by all Dealers in Photographic Goods,
OR BY
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ACME
AUTOMATIC KODAK COUNTER.



(Patented Sept. 15, 1891.)

SIMPLE. DURABLE.

ANY ONE CAN ATTACH THEM IN A MOMENT.
ONLY A MOMENT REQUIRED.
WORKS PERFECTLY
REGISTERS AUTOMATICALLY
ALL EXPOSURES MADE.
TELLS EXPOSURES REMAINING ON ROLL.
GUARANTEED IN EVERY PARTICULAR.

PRICE LIST;
No. 1—For Regular Kodaks..... $2 00
No. 2—For Junior Kodaks..... 2 00

ACME BURNISHER CO.,
FULTON, N. Y.

"The Developer of the Future."

S. P. C.
Para-Amidophenol Developer

IN ONE SOLUTION.

An eight (8) ounce bottle containing developer sufficient for developing 100 5 x 8 negatives.

PRICE, 50 CENTS.

For sale by all dealers in Photographic Materials
AND BY
THE SCOVILL & ADAMS CO.

GERMAN PHOTOGRAPHIC COLORS,

MANUFACTURED SOLELY BY **GUENTHER WAGNER,** HANOVER and VIENNA.

RETOUCHERS, ALBUMEN WHITES, GLOSSY COLORS.

The **RETOUCHERS** are for retouching the positive prints, and are in three different tints, to suit the different backgrounds of the photographs:

No. I. Brownish Tint. No. II. Reddish Tint. No. III. Bluish Tint.

These retouchers are intended to take the place of India Ink with its various admixtures of Carmine and other pigments. They are prepared for ready use and thus shorten very materially the operator's work; also in many other ways they are a very great improvement in the ordinary method of retouching.

The **ALBUMEN WHITES** are for spotting on Albumen paper, and are also prepared in three different tints. They will dry with a **GLOSS** on the Albumen papers, thus preventing the retouched plates from being seen after the spotting is done.

No. I. Pure White for high light. No. II. A Light Yellowish Tint. No. III. A Deeper Yellowish Tint.

The **GLOSSY COLORS** are specially prepared for tinting photographs. The list comprises: Cobalt Blue, Cadmium Yellow, Rose Madder, Sepia, Scarlet Lake, Venetian Red and Yellow Ochre.

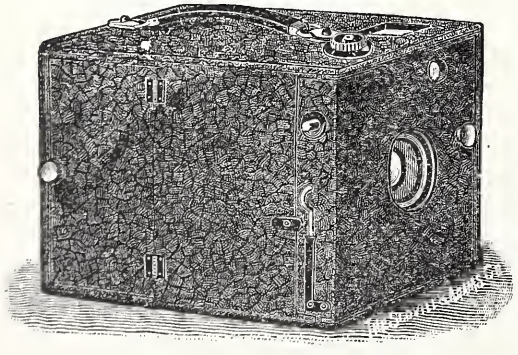
These Glossy Colors, as well as the Retouchers and Albumen Whites, can be used either before or after burnishing. They are all put up in cylinders, neatly wrapped in tinfoil. They will be found very economical in use, as by putting a drop or two of water on the palette and gently rubbing the ends of the cylinders in it, sufficient color will be produced for a number of pictures.

WAGNER'S ∴ PHOTOGRAPHIC ∴ COLORS.

Photo Retouchers, I., II., III.	$0 50	each.	
Albumen Whites, I., II., III.	50	"	
Glossy Colors.			
Cobalt Blue	60	"	
Rose Madder	60	"	
Cadmium Yellow	60	"	
Scarlet Lake	50	"	
Sepia	$0 30	each.	
Venetian Red	30	"	
Yellow Ochre	30	"	
Mahogany Boxes containing			
No. I., the three Retouchers and Whites	2 25	"	
No. II., the three Retouchers, three Whites, and seven Glossy colors	7 00	"	

For Sale by THE SCOVILL & ADAMS CO.

THE TRIAD CAMERAS.



When a discovery in photography is announced, it is claimed that the new article will displace everything then in use. These claims are seldom justified. There is generally found a place for the new article, if it has any value, and for the old as well.

For commercial purposes, for instance, such as the reproduction of photographs for illustration, it has been demonstrated that collodion "wet" plates are better than dry plates. For the use of the amateur, on the other hand, dry plates are much better than wet plates. Though many new supports have been tried, the sale of glass dry plates is larger now than ever before. Where only a few pictures are to be made on one day's outing it is likely that the experienced photographer will always use dry plates or cut films.

If he is going away for a summer vacation, or for a trip abroad, and expecting to to make a large number of pictures, he will procure a roll-holder loaded with continuous films. This will save him the bother of developing while he is away from home, and of changing plates; but he cannot well know what results he has secured until he has exposed the entire roll and has had it developed

For those who want to use celluloid instead of glass plates, and are not willing to trust to good luck in the exposure of the complete roll of film, we offer with the "TRIAD" camera a *double* film holder which is very light. If the amateur carries six of these holders (loaded with twelve films) he is well supplied for one day: that is, if he is prudent and aims to get only really good pictures. At night, either in a photographic studio or in his own hotel room, the exposed films may be put away into safe receptacles, and another lot of unexposed films substituted for them.

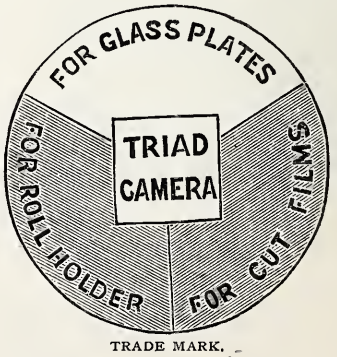
The TRIAD Camera is fitted with the latest improved Roll-Holder for continuous films, two double holders for glass plates, or two double film holders, if the latter are preferred.

This Camera is fitted with an Instantaneous Rapid Group Lens with easily interchangeable diaphragms —the most satisfactory detective camera lens ever made. It has a finder so constructed that the image is the same as that on the ground glass, though of course it is proportionately diminished in size. Usually the finder in a Detective Camera shows simply the image on the plate, but not its relative size and proportions. The Instantaneous Shutter in this camera is provided with a speed adjuster which works from the outside, and the focusing device and scale are conveniently near the finder. This is very important when one is trying to photograph rapidly moving objects.

For timed exposures use a tripod (easily adjusted to the camera by the plate underneath), open the door at the back, so that the image on the ground glass can be easily seen, set the shutter with the opening opposite the lens, and bring into use the felt cap which fits the opening in front of the camera. By complying with these simple requirements you have a complete camera for timed exposures.

	Price complete.	Price without Roll-Holder.
4 x 5 Triad Camera, with Roll-Holder, two Double Dry Plate Holders, or two Cut Film Holders	$35 00	$25 00
Extra 4 x 5 Triad Double Dry Plate Holders		1 25

Holders for Cut Films, same prices as above.



TRADE MARK.

For sale by all dealers in Photographic Materials and the Manufacturers,

THE SCOVILL & ADAMS CO.

NEW PRINTING PAPERS.

KALLITYPE.—A new process recently discovered, yielding prints of a beautiful black tone with a mat surface

PERMANENT, RAPID, SIMPLE, CHEAP.

Send for price-list and toning directions.

TRY ALSO CULLEN'S NEW MAT SURFACE PAPER.
CULLEN'S OBERNETTER PAPER.
CULLEN'S BLUE PROCESS PAPER.
CULLEN'S PLAIN SILVER PAPER.
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SUPPLIES AND APPARATUS OF EVERY DESCRIPTION.
Sole Agent for Kallitype, New Mat Surface, Obernetter and Manhattan papers.

W. C. CULLEN, 61 William St., New York.

AMATEURS, ATTENTION!



Please remember that in speed and every desirable optical quality no lenses yet constructed can rival

Voigtländer's Euryscope Lenses,

which are made in SEVEN different styles.

BENJ. FRENCH & CO.,
319 Washington St. BOSTON, MASS.

Revised price-List sent on application.
Correspondence solicited.



Patented July 17, 1887.

STAMP PORTRAITS.

These are the only stamp portraits that are gummed and perforated, and being the exact size of ordinary U. S. postage stamps, photographers and others will find them an interesting novelty in advertising their business, as they can be mounted on business and visiting cards, letter-heads, etc.

We also make a size four times larger than the stamp pictures. Send for samples and prices, which will be furnished on application.

Address
H. A. HYATT,
Sole Agent,
N. E. Cor. 8th & Locust Sts.
St. Louis, Mo.

EXAMINE OUR NEW

BOOK CAMERA

BEFORE YOU PURCHASE ANY OTHER.

It is the most unique, elegant and attractive Camera ever produced. Suitable for ladies or gentlemen. Can be used as a hand camera or on a tripod.

SCOVILL & ADAMS CO.,
423 Broome St., New York.

CLEMONS' NEW MATT-SURFACE PAPER.

SOMETHING NEW UNDER THE SUN—A REVOLUTION IN THE ART OF MANUFACTURING.

After many years of scientific research a preparation for the salting of plain photographic paper has been discovered, by which method the finest printing results are obtainable. The advantages are apparent to all.

I.—Constant use will not discolor the silver bath.
II.—Will produce the finest detail in printing.
III.—Any desired tone may be obtained from sepia to jet-black with less gold than ever before.
IV.—The *"New Matt-Surface"* paper when sensitized will keep fresh for a long time if properly stored.
V.—The price has not been advanced.

For sale by

THE SCOVILL & ADAMS COMPANY,
Sample Sheets, by mail, 10 cents each. 423 Broome St., New York.

"THE KNACK."

NOT THE CAMERA,

BUT THE BOOK.

Written expressly to help the beginner in perplexity.

Price, reduced to 25 cents.

Sent postpaid to any address on receipt of the price by

THE SCOVILL & ADAMS CO.,

423 Broome Street, New York.

HORGAN, ROBEY & CO.,

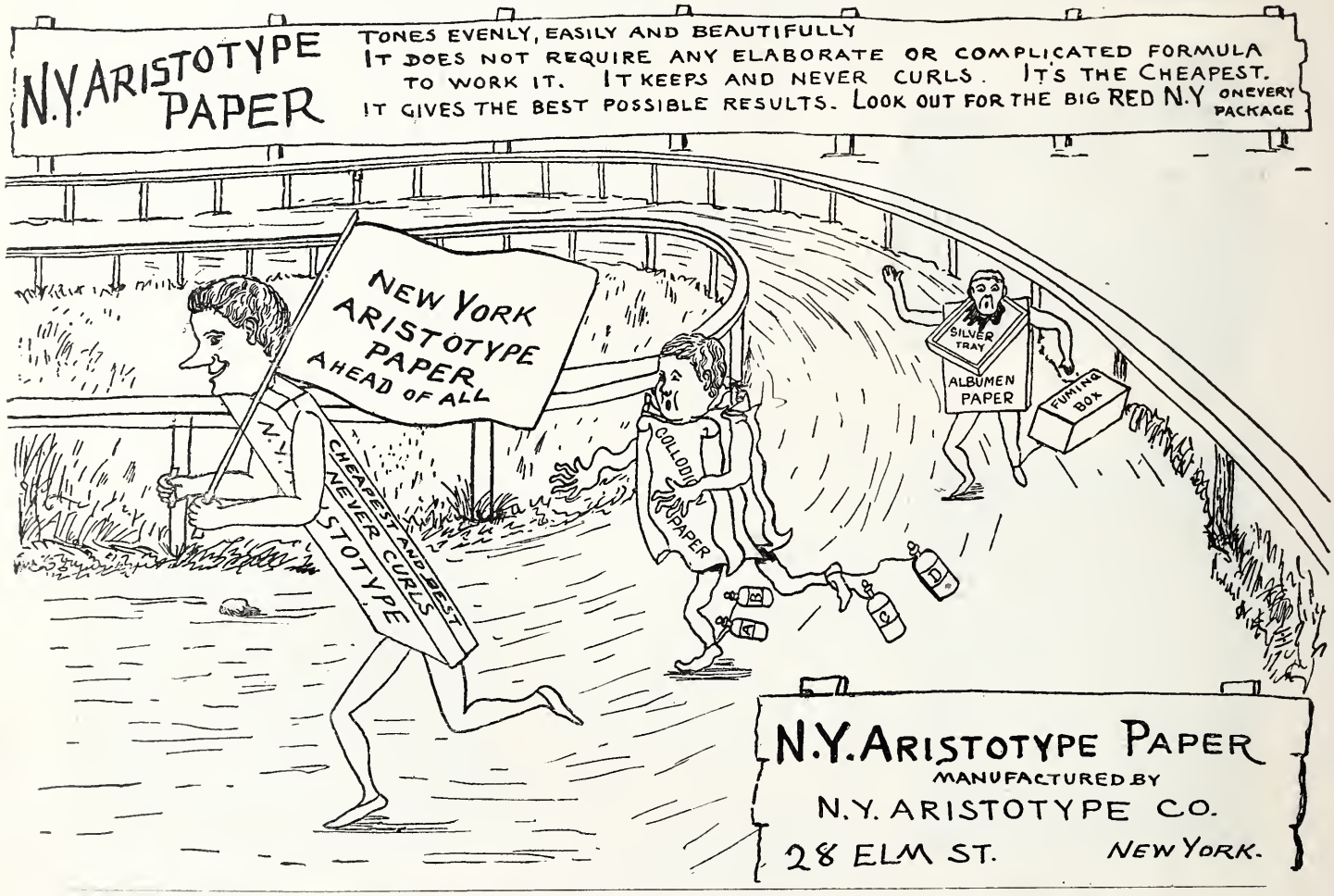
Photographic Stockdealers,

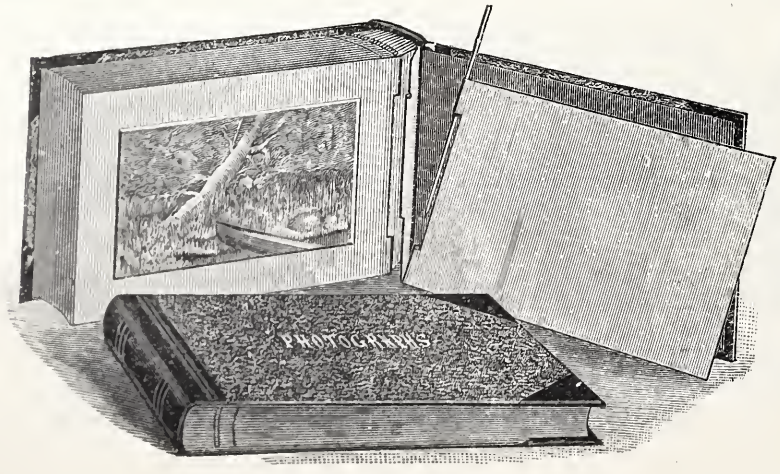
SOLE AGENTS FOR THE

NEW ORTHO-PANACTINIC LENS, C. H. C. & CO. S ALBUMEN PAPER, THE SEMI-CENTENNIAL CAMERA STAND, THE ODIN FRITZ RE-TOUCHING MEDIUM.

New England Agents for American Optical Co.'s Apparatus. Best in the world. Send for Price List.

34 BROMFIELD ST., BOSTON, MASS.





IMPROVED SPRING BACK

ECLIPSE ALBUM.

PRICE LIST.

IMPROVED SPRING BACK WITH TWENTY-FOUR COLLINS CARDS. WHITE AND GRAY.

No. 1	6 x 7	cards	$2 25
No. 2	7 x 10	"	2 50
No. 2½	10 x 7¼	" upright.	3 50
No. 3	10 x 12	"	3 75
No. 3½	12 x 10	" upright.	4 25
No. 4	11 x 14	"	4 25
No. 5	14 x 17	"	7 00

Nos. 1, 2, 2½, 3, 3½ and 4 are handsomely finished in Morocco, half leather bound, with gilt title, and enclosed in a neat box. No. 5 is extra gold finish.

For sale by

THE SCOVILL & ADAMS COMPANY,

423 Broome Street, New York.

THE
Tintype Brigades

Are moving for their Harvest Fields, and THE SCOVILL & ADAMS CO. have laid in a superior line of material for their use, consisting of

FERRO PLATES,
CAMERAS,
CAMERA STANDS,
HEAD-RESTS,
FELT BACKGROUNDS,
AND THEIR WELL-KNOWN BRAND OF
PHENIX FERROTYPE OR
POSITIVE COLLODION AND VARNISH,
IN FULL-WEIGHT 8-OUNCE
PHENIX POURING BOTTLES.

ASK YOUR DEALER FOR

S. & A. GOODS.

The proper thing

In Photographs is the **ARISTOTYPE**

The proper thing

For making Aristotypes is the

ALPHA ARISTOTYPE PAPER

Send **30** cents for a sample dozen.
$1.70 per gross Cabinet size.

The proper thing

To protect Aristotype Prints are the

CABINET PHOTO COVERS

$2.00 per thousand.

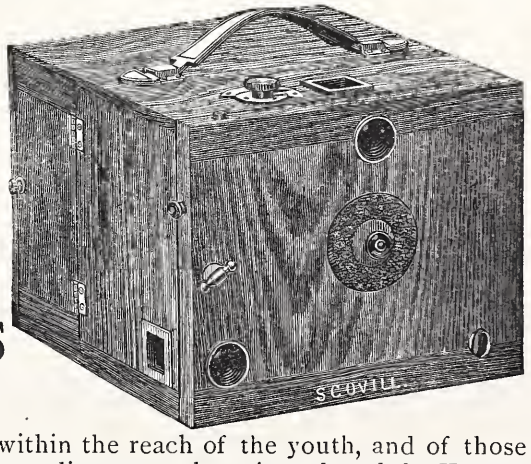
Thos. H. McCollin & Co.

PHOTO SUPPLIES OF ALL KINDS,

1030 Arch Street, Philadelphia.

IMPROVED KNACK

DETECTIVE CAMERAS



To MEET the demand for a cheap Detective Camera within the reach of the youth, and of those who want to make but a moderate investment in photographic appliances, we have introduced the KNACK CAMERA, which is certainly lighter and more compact than any other cheap detective camera in the market, and what is still more important, has a much more expensive and more perfect lens.

This Double Combination Instantaneous Lens, with Interchangeable Stops, when bought separately costs as much as the whole camera.

The whole front of this camera is hinged, which is a great convenience. The camera has a Recessed Finder, an Instantaneous and Time Shutter with Speed Regulator, Cap for timed exposures, and one Double Dry Plate Holder.

	PRICE.
No. 1 4x5 Antique Oak, Knack Camera, -	**$15.00**
No. 2, " Leather Covered, " "	**17.50**

MANUFACTURED BY THE SCOVILL & ADAMS CO.

FOR SALE BY PHOTOGRAPHIC MERCHANTS.

THE SCOVILL MAGNESIUM COMPOUND

IS ENTIRELY FREE FROM POISONOUS INGREDIENTS.

THE GENUINE ARE IN SILVER WRAPPERS.

In order to demonstrate this, quantities have been eaten at various times. We have often pounded it in a mortar to show that it does not explode.

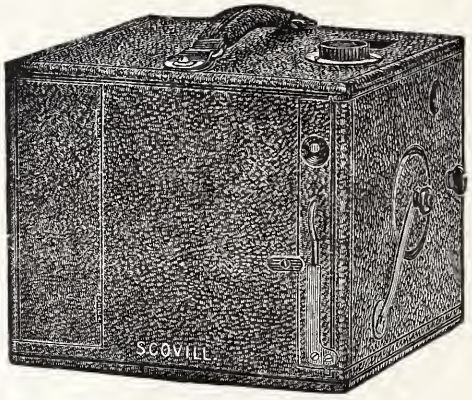
Price of Scovill Magnesium Compound.

In ounce bottles, with fuses.	$0 50
In quarter pound cans, with fuses....	1 40
In half " " " "	2 65
In one " " " "	5 00

Price of Scovill Magnesium Cartridges.

	Per Doz.	Per Gro.
No. 1, put up in packages containing 6 cartridges.	$0 50	$6 00
No. 2, " " ..	80	9 00
No. 2½, " " ..	1 20	13 00
No. 3, " " ..	1 50	17 00

THE WATERBURY DETECTIVE CAMERAS.



MANUFACTURED BY THE AMERICAN OPTICAL CO.

Timed and Instantaneous Photographs. This is the only Detective Camera which is as well adapted for making timed views as for photographing quickly moving objects. The negatives produced are of such sharpness that they may be enlarged to almost any size, It is

The only Detective Camera made for plate for tripod, and with ground-glass the full size of the plate, just as in an ordinary view camera. This ground-glass is where it cannot easily be broken.

The Recessed Finder shows *the same image* as is included on the ground-glass, though diminished in size. Without this accurate finder, one cannot be sure of what is taken in or left out of an instantaneous photograph.

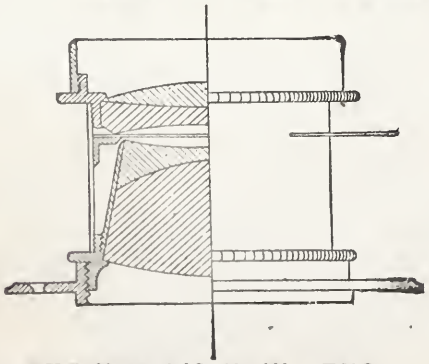
The Focusing Scale is beside the Finder, where it may be readily seen and adjusted.

Price List.

	Leather Covered.
4 x 5 Waterbury Detective Camera, with 2 Double Holders	$25 00
5 x 7 Waterbury Detective Camera, with 2 Double Holders...	40 00

FOR SALE BY ALL DEALERS.

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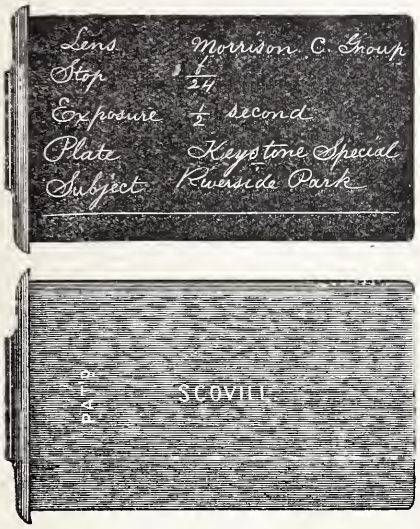
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On February 15th, the first edition of 16,000 copies of 'The American Annual of Photography and Photographic Times Almanac" for 1892, being nearly exhausted, the publishers issued a circular inquiring concerning the number of books unsold, if any, and also concerning the demand which still existed for the book, with a view of determining the advisability of issuing a second edition. In response to this circular about fifty answers were received, from which the following are quoted at random:

Felix Reifschneider, Jr.: "We have not got one copy of the fifty copies we had. They sold very well, twenty-five the very first day I had them in."

Thos. H. McCollin & Co.: "'The Times Annual' for 1892 is a great success. We have had four lots and have only a half dozen copies on hand. There seems to be a steady demand for it."

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F. Hendricks & Co.: "We have on hand only five copies to-day of 'The Times Almanac.'"

Sweet, Wallach & Co.: "We have disposed thus far of over 250 copies. Think we will want more later."

Oscar Foss: "Of the 175 copies received from you not one now remains. I have ordered a few more copies, which will, I believe, supply the demand here. If I had ordered 250 copies instead of 175 I should have had no trouble in disposing of them this year."

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Charles Lawrence: "We are entirely out, and shall need a few more copies."

Zimmerman Bros.: "Have sold twice as many as we expected."

J. C. Sommerville: "We have disposed of 100 copies, and are not certain that we shall reqr ire any more."

Douglass & Shuey Co.: "Paper, all gone."

Robert Clark & Co.: "We have none left in stock of the 'American Annual of Photography and Photographic Times Almanac' for 1892."

Kimball & Mathews: "We are about out of the 'Annuals.'"

M. F. King: "I have none of the 'Annuals' left. Could sell a few more, most likely, if I had them."

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And Photographic Times Almanac

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A LIST OF THE ILLUSTRATIONS:

"Flirtation," by H. McMichael; New York Photogravure Co.

"Don't be Afraid!" by Gustav Leupelt; F. Gutekunst.

"A Portrait Study," by Fredrick Müller; Albertype Co.

"Uncle Ned," by R. Eickemeyer, Jr.; Geo. M. Allen & Co.

"At Play," by Lieut. Karl Hiller; Wm. Kurtz.

"Herr Nesper, as 'Wallenstein,'" by Heinrich Riffarth.

"Grace Ideal," by Harry L. Ide; Electro-Light Engraving Co.

"Bye-Bye, Papa!" by James E. Line; Electro-Tint Engraving Co.

"What A Waterbury Lens Can Do," by Andrew B. Dobbs; New York Engraving and Printing Co.

"Village Scene in Austria," by the Interior Court and State Printery of Vienna.

'Engaged?" by the Crosscup & West Engraving Co.

"Swiss Village Street," by Ellerslie Wallace; Moss Engraving Co.

"Mechlin Cathedral, Belgium," by Ellerslie Wallace; Moss Engraving Co.

"On the Via Mala, Switzerland," by Ellerslie Wallace Moss Engraving Co.

"A Torpedo Well," by Erastus T. Roberts; Wm. Kurtz, New York.

"Roasting Apples," by Louis C. Bennett; Photo-Electro Engraving Co.

"An Athletic Photographer," (S. J. Dixon) J. C. Hemment; W. Kurtz.

"A Baden Highland Peasant," Oscar Suck; Electro-Light Engraving Co.

"A Stage Beauty," by Stholl; Photo-Engraving Co.

"Blankenberghe Beach," by Alfred Canfyn; M. Wolfe.

"An Old Roman Garden," W. J. Stillman; Crosscup & West Engraving Co.

"The Little Maid from School," by F. Gutekunst; The Levytype Co.

"Doubles," by A. A. Adee; The Levytype Co.

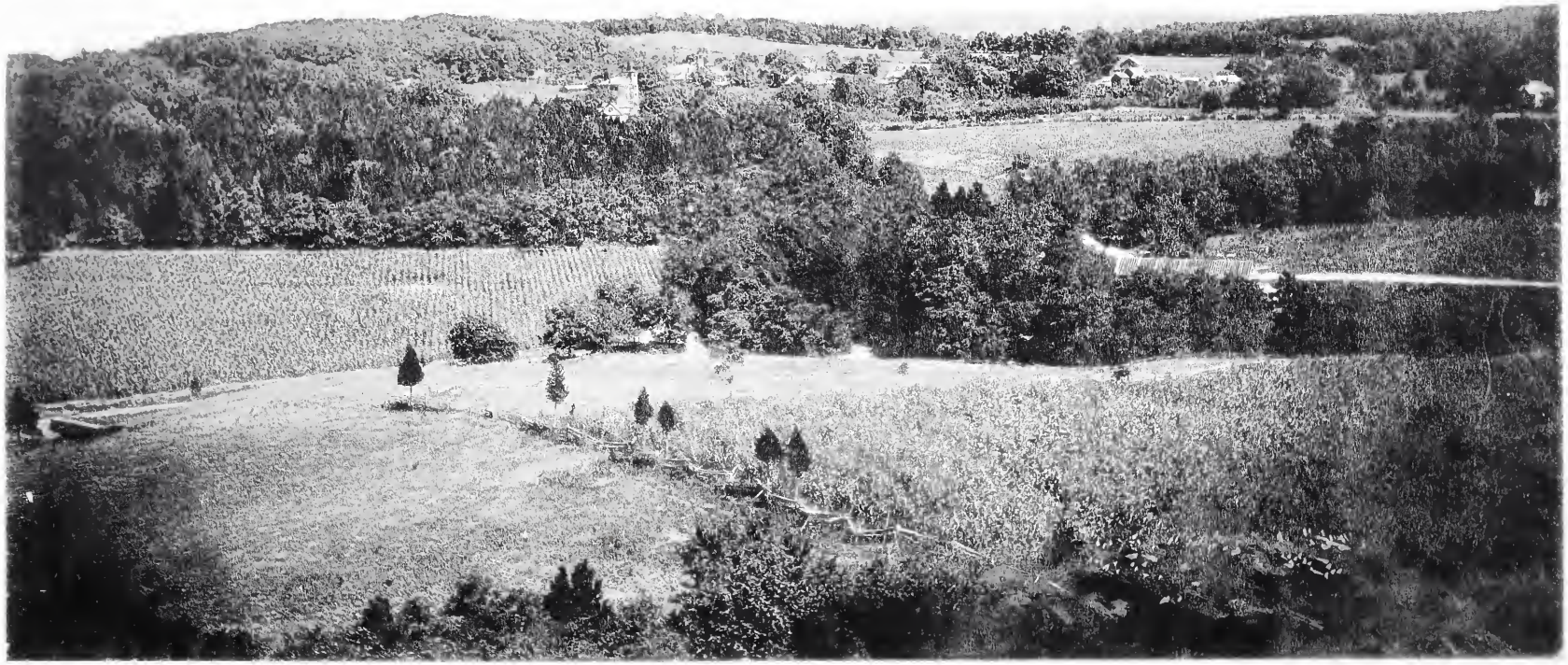
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DR. JOHN L. MACUMBER, PHOTO

GEO. M. ALLEN & CO. N. Y. PRINT

A LANDSCAPE

THE PHOTOGRAPHIC TIMES.

VOL. XXII. JUNE 3, 1892. No. 559.

"A LANDSCAPE."

Calm and still light on yon great plain
That sweeps with all its autumn bowers,
And crowded farms and lessening towers,
To mingle with the bounding main.

THE graceful lines of Tennyson are illustrated by our picture this week, as well, perhaps, as an American landscape could illustrate them. The view was made from the top of the big chimney at the King's County Insane Asylum at King's Park, Long Island, looking west. This chimney is 200 feet high and has a diameter of 8 feet inside. The top was reached by the photographer, Dr. John L. Macumber, who is the Medical Superintendent of the Asylum, by climbing an iron ladder inside, carrying the apparatus (a Scovill camera) strapped to his back. The exposure was made at about 11 o'clock on a Harvard plate; pyro and potash were used in developing the negative. Though made from so dizzy a height, the picture has not the distorted appearance which characterizes so many bird's-eye views.

PHOTOGRAPHING ON HARD SURFACES.

DOCTOR ARMAND MÜLLER-JACOBS, a contributor to THE PHOTOGRAPHIC TIMES, whose articles are always of more than usual interest, has patented a process for photographing upon hard substances such as glass, metals, etc., previous to etching. A great obstacle to etching successfully upon glass with hydrofluoric acid is the want of resistance of any photographic film to the acid, but by a combination of guaiaretic acid with metallic salts or organic bases, a film and image is obtained on exposure to light upon which hydrofluoric has no action whatever.

We extract from the patent the following description of Doctor Müller-Jacobs process:

The invention has reference to a new process of producing photographs, images, and pictures on hard surfaces, as glass, metal, porcelain, etc., and the invention consists in applying to such a surface a coating of a solution of guaiaretic acid or of the guaiaretate of a metal or organic base and submitting the so-coated surface under a photographic negative or a transparent positive of the image to the action of the light, whereby the parts of the coating exposed to the light through the unaffected parts of the negative or transparent positive become hard and insoluble, then developing the coated surface, and finally applying to the film a suitable acid, whereby the picture is etched into the surface. The hard portions of the film which are not affected by the acid are then removed.

I have found that the guaiaretic acid ($C_{20}H_{26}O_4$) or its metallic salts, or those made of guaiaretic acid with organic bases, by exposure to light change their properties as to solubility and as to resistance to oxidixing agents. The guaiaretic acid, as well known, is, freshly prepared, soluble in alcohol, ether, bisulphide of carbon, chloroform, acetic acid, benzole, and other substances; but by exposure to light it becomes less or entirely insoluble in these substances, like asphaltum or resinates—that is to say, the salts of abictic acid ($C_{44}H_{64}O_5$). As far as my researches go guaiaconic acid ($C_{19}H_{22}O_6$) is formed by this action, which latter is still more oxidized by certain likewise-acting substances. A similar effect takes place by exposing the salts of guaiaretic acid with metals or organic bases, also the chlorine, bromine, and iodine substitution products or the corresponding salts to the action of light. Certain colors—for instance, anilin-violet, magenta-red, safranine—when combined in minute quantities with guaiaretic acid or salts accelerate the action of the light—*i.e.*, they act as sensitizers. I furthermore found that a thin coating of this acid or its salts laid upon a hard surface and exposed to the light for a certain time becomes impermeable by dilute universal or organic acids. These properties of guaiaretic acid or its salts, as aforesaid,

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render them useful for the production or reproduction of pictures, photographs, ornaments, etc., by means of the actinic rays.

In carrying out my invention to produce a photograph, picture, image, or ornaments on a hard surface, as metal, porcelain, glass, lithographic stone, etc., I first dissolve one hundred parts of crystallized guaiaretic acid, or, to obtain a more sensitive film, one hundred and twenty parts of dry amorphous guaiaretate of silver, or of a corresponding quantity of the zinc, lead, or magnesium salt (which latter are less sensitive than the silver salt) in five hundred parts of pure benzole. I may use the salts colored with 3 to 4 per cent. of anilin-violet or another aniline color or colors. I then prepare a rubber solution by dissolving seven and one-half parts of dry caoutchouc to five hundred of benzole. I may also use a collodion solution instead of rubber, the collodion solution containing 1 to 2 per cent. of nitro-cellulose ; but I prefer the above-described composition of rubber. Both solutions are then thoroughly mixed together and the well-cleaned surface on which the picture is to be produced is carefully coated with the mixture thus obtained in the dark. Then the so-coated surface is exposed under a negative or transparent positive to the action of light, a ten to twelve minutes' exposure to direct sunlight being sufficient to harden the exposed parts and to render them insoluble in the developing-bath, and the best I found to be composed of a mixture of one part of benzole and five parts of spirits of turpentine. Of course other developers can be used. The parts of the film which are not affected by the action of the light are thereby removed and the picture appears on the surface. The plate is then dried and etched by appropriate acids, according to the nature of the surface to which the sensitive film is applied ; or it may be printed from directly with lithographic ink.

The guaiaretic acid which I use is prepared in the following way : Two parts of guaiacum are dissolved in ten parts of alcohol, filtered, and concentrated to a thin syrupy solution. Then it is mixed with a warm concentrated solution of one part of potassium hydrate After twenty-four hours standing it forms a mass of the consistency of pulp aud is pressed through a filtering-cloth. The remainder is thoroughly washed first with alcohol and then with water and crystallized by means of dilute alcohol.

THE SECOND ANNUAL PHOTOGRAPHIC EXHIBITION OF THE DEPARTMENT OF PHOTOGRAPHY, BROOKLYN INSTITUTE OF ARTS AND SCIENCES.

THE Department of Photography of the Institute numbers over 200 members, of which only 34 are represented in this exhibition.

Our first impression on entering the rooms of the department—and we were not altogether mistaken—is, that although there are pictures of great value, both artistically and technically, showing that some of the members are past-masters in our art-science, there are many more photographs which tell that their makers are progressing, but do not yet thoroughly understand the chemistry and mechanism of the processes.

Not knowing their manner of operating, what developer they use, etc., we cannot with certainty point out where the faults are, but by the appearance of the prints we can say that either the plates were not sufficiently exposed or that the development was not pushed enough—which is a general fault with beginners. The exposure time is subordinate to the subject and the development should be conducted to suit the lighting. We will not be surprised that hydroquinone was the developer used to develop the negatives from which the proofs in question were printed. No developer, in our opinion, is more difficult to handle, and therefore none requires more practice to know how to use it well.

Most of the prints (over 500) are made on aristo paper, few are kallitypes and platinum, and not one hundred are catalogued as silver prints.

Many of the positive proofs exhibited do not give justice to the negatives. They seem to have been made in a sort of mechanical manner, printing all alike either in the sun or in the shade. There are also some, not many, prints 4 x 5 with a general brownish tint which is far from being pleasing and spoils the effect of contrasts.

The members of the department of photography will certainly understand the intention of our criticisms. We know they will please them more than common-place praises: *Amicus Plato, sed magis amica veritas.*

The catalogue is illustrated with typo gravures which are remarkably good and artistic pictures from well-exposed and well-developed negatives ; they are :

"A Winter Scene," by Mr. J. W. Morrow.

"Water Cart, Lake Mahopec," by Mr. Geo. W. Street.

"Dining-room of the White House," by Miss Virginia Chandler Titcomb.

"At Irvington," by Mr. John H. Dingham.

"The Maples," by Mr. Gould W. Hart, a very brilliant picture, by-the-bye.

"A View in Prospect Park," by Mr. Lewis P. Atkinson.

The first photographs we remarked were a set of enlargements by Mr. Lewis P. Atkinson, amongst which No. 6—"View in Prospect Park"—is specially good, although a little harsh, as the others, however. No. 2—"Water Cap, Delaware"—has a general blue-green tint which would be very effective were the picture printed a little darker, according to our taste. Mr. Atkinson also exhibits a number of good transparencies and lantern slides toned sepia, blue, red, green, which shows that he is a true and enthusiastic amateur, knowing all the resources of the art, but who certainly prefers sepia or black tones for this kind of photographs.

Mr. Mitchell exhibits only one picture, but it is a gem. A landscape on a 8 x 10, printed on pink albumen paper, a little deep in color, we think, for this, and, in fact, for any subject. We did not find the name of Mr. Mitchell on the catalogue

Mr. Wm. Gilchrist, a beginner who made his first assays three or four months ago, has nine pictures which do him honor for their good qualities.

Amongst the pictures of Miss Susie B. Skelding there are some very fine ones ; an "Interior," specially. Why do you not make yourself the prints from your negatives, Mademoisselle? We think they will be done with greater care.

All the pictures of Mr. F. L. Lathrop, No. 42 of the catalogue, are very good.

Mr. Alexander Black exhibits but few pictures. Two enlargements from 4 x 5 negatives—"Diana"—might be better as enlargements. The two subjects are artistically composed, which is certainly the principal object every photographer should have in view.

Miss Virginia Chandler Titcomb is one of the best photographers of the Institute. Her miscellaneous views are good, the "Interior," No. 69, is splendid.

Mr. Wm. H. Bedford has a very large exhibition of *Snap Shots*. E and G are amongst the best. We must say that many are indifferent. But we should remember that they are snap-shots, that is subjects always difficult to well develop, the exposure being reduced to the minimum.

"Views in Prospect Park," No. 15, by Mr. Geo. M. Boardman, and the landscapes Nos. 17, 18 and 19 by Mr. Henry A. Carby, we consider as good photographs.

Judging from "View in Buffalo"—G—which is faultless, and a portrait, which is also a good, well-lighted photograph, and some others in frame No. 28, we think that Mr. H. W. Dresser could have improved many of the pictures exhibited. It seems that in developing the negatives have been too soon pushed to density.

There are some good pictures exhibited by Miss Anna L. Meeker, as also, among those made by Dr. Meeker, No. 48, "The Brook" is praiseworthy. Perhaps the picture is wanting in some details which leads us to think that the negative has been developed by hydroquinone, or too rapidly with a strong developer.

Mr. Henry J. Newton exhibits sixteen pictures. they are perfection, of course. There are many years since Mr. Newton ranks among the very best amateur photographers. We owe to him a capital improvement in the preparation of *negative* collodion emulsions.

Mr. John H. Dingman's exhibition is good. A, the "Arch Beautiful," G, the "Roamer's Yawl," are excellent photographs. K is a portrait well posed, well lighted and R an enlargement well executed.

N, in frame 34, is an example of the perfection attained in our art by Mr. Edw. W. Hirsh. Our memory is at fault here. We have seen other good pictures by the same amateur and cannot describe them.

No. 39, "Drive in the Wood," by Mr. Gould W. Hart, is a very good picture of a very difficult subject; right exposure, right development. No. 38, by the same gentleman, is also quite remarkable; a most brilliant picture, without harshness. We regret, however, that the tops of the maples are cut off, and that the picture does not a little more extend on the right. But these are minor defects. Other pictures—the *instantanés*, for example—should also be mentioned.

The pictures of Mr. George W. Street show the work of a master photographer. They are printed in platinum, which is a guarantee of their permanence.

Mrs. Benjamin Estes has a frame of good *instantanés*—No. 31. Snap-shot photography is quite fascinating. But permit me to tell you, madam, that very rapid exposures seldom yield faultless pictures. To develop the little impressed latent image is not facile, and if one does not, in many cases, sacrifice the secondary parts of the scene for *the subject*, and does not use the largest possible diaphragm and the shutter at slow speed in order

to obtain a more luminous image in the camera, not often are good pictures obtained. Time exposures can alone produce entirely perfect photographs.

Mr. G. B. Way makes an exhibition of over 50 pictures; the largest represented negatives and prints are made by himself. Some are very fine, all are generally fair. Every imaginable subject is treated: landscapes, buildings, interiors, groups, flowers, etc. We would be much embarrassed among so many pictures to point out the most perfect.

Mr. Aug. Treadwell, Jr.'s, pictures are good; those of Mr. Frank Willard are under-exposed, we think, or under-developed.

Mr. H. S. Woodruff has a small exhibit of five pictures which are fair.

Mr. G. W. Wundram prints all his excellent pictures in platinum. We do not remember well the exhibitions of this gentleman nor those of Miss L. Rowley and of Messrs Geo. H. Cook, H. A. Dwyer, F. E. Dubois, Edwin Rice, A. W. Fox and C. W. Nichols, so we refrain to speak of them. We remember, however, a landscape with clouds by Mr. Prescott B. Vail which is a very fine picture.

Mr. J. W. Morrow has sent excellent photographs indeed. We have specially noticed in frame 49, the "Falls near Marquette (Mich.)," and "Dead River Falls." The latter is a gem and would make with figures a painting not without merit. E and J, in frame 50, are also excellent. The prints in frame 49 are good kallitype prints.

Mr. W. H. Woodcock's pictures are the work of an artist-photographer. The snap-shops are quite excellent. The interiors of St. Luke's Church are—the English language is poor in qualificatives. Mr. Woodcock makes his own aristo paper, sometimes his plates also. He is, we are told, the organist of Garden City Cathedral. Music and painting, go hand in hand—*les Muses sont sœurs.*

In the meeting room of the department there is an exhibition of stereoscopic transparencies and lantern slides which does honor to the exhibitors. Mr. H. J. Newton is there represented by good work; the slide marked O is excellent. Another slide also excellent and particularly remarkable by its wonderful sharpness at all the planes, is the slide of the "World Building" by Mr. G. W. Wundram. The "Elephants" is also a very fine slide. "A Wood Alley" and a portrait of a little girl, taken by the bad photo-lighting of the room, are very good slides of still better negatives made by Mr. G. W. Hart to whom we tender here our thanks for the kind and cordial manner he received us, and the trouble he took to explain and show us everything.

The "Night-Blooming Cereus" and H—a group—by Mr. W. C. Pecham; the slides in various colors by Mr. L. P. Atkinson; X—a group—by Mr. E. W. Hirsh, etc., are all praiseworthy, excellent.

All these slides are exhibited in frames of 12, 5 on each side of a triangular showcase, interiorly lighted by Edison electric burners.

The dark-room of the department is spacious, well ventilated, and practically lighted. The light from the electric lamps are projected on the developing bench—and only upon it—by passing first through an orange glass plate, then through a ruby one, which render the light quite safe, and allow plenty of it to be used. A particular which we did not see in any other is that the room is all the time lighted by a lamp, covered by two sheets of post-paper, suspended in the middle of it, and consequently at such a distance that this light can have no effect on the plates developed under the ruby light, although sufficiently strong to allow one to see everything in the room, which is a great convenience.

In concluding we praise the members of the department for the progresses made since their last, the first exhibition of their works.

GENERAL H. Q. SARGENT.

THE following brief sketch of General Sargent, of Sargent & Co., the well-known photographic merchants of Cleveland, Ohio, is taken from the Cleveland *Examiner* of April 2d:

"He has been an active citizen of Cleveland long enough to make himself thoroughly well known in business and social circles, and at the same time has steered clear of all political notoriety. For twenty-two years he has been a resident here, and no man bears a better reputation for honorable dealing and upright conduct. He is a graduate of the New Hampton Literary and Scientific Academy, and for six years taught in grammar schools. When the country called for volunteers he entered the service as a private, and at the end of three years of active duty came out a captain. His interest in the public schools has always been a deep one, and while he believes in zealously guarding their rights, he is by no means a man of bigoted views."

He was elected director of public schools in Cleveland last spring, an important public office which he has filled with conspicuous credit to himself and benefit to the public schools of Cleveland.

General Sargent is also a Free Mason of high rank. We extract the following from a brief sketch of his life from a Masonic paper of recent date:



"Bro. H. Q. Sargent was born at Tamworth, Carroll County, N. H., on the 28th day of September, 1838, his father being one of those well-to-do farmers, whose names are closely linked with the advancement and prosperity of "old" New England. After gathering unto himself the knowledge to be gained at home schools and academies, he fitted for college at the New Hampshire Literary and Scientific Institution. Like unto many of the successful men of to-day Bro. Sargent devoted six years of his life in the roll of a pedagogue, most of the time being in the grammar schools of Massachusetts. In 1862 we find him enlisted as a private in the Twelfth New Hampshire Volunteer Infantry, serving until the close of the war, and coming out as First Captain of the Regiment. During the many years of service he participated in all the leading battles in which the Army of the Potomac were engaged, and had the honor to command the first infantry troop entering the city of Richmond. Bro. Sargent's experience in the army led him to believe that Ancient Craft Masonry was something of more import than fleeting show, and, in 1865, upon his return home, he petitioned and was elected to receive the degrees in Union Lodge, No. 79, located at Bristol, N. H., subsequently being elected to all the offices within the gift of the lodge, from Junior Deacon to Worshipful Master."

General Sargent was president of the Photographic Manufacturers' and Dealers' Association, and is one of the best known photographic merchants in the country. He is universally admired and respected.

PICTURE-MAKING AND HOW IT SHOULD BE PRACTICED.

> Sounds which address the ear are lost and die
> In one short hour; but that which strikes thy eye
> Lives long upon the mind; the faithful sight
> Engraves the knowledge with a beam of light.
>
> —*Horace.*

There is nothing that memory retains longer than the scenes, faces, or other objects conveyed to the mind through the eye. We may listen to one who can vividly describe a place, without comprehending in any great degree what it looks like; but let a series of pictures illustrating it be laid before us, we grasp the subject at once, and the impression thus formed will not be forgotten. The art of picture-making is now generally practiced. Places where only a few years ago few professional and no amateur photographers were to be found now swarm with both.

The introduction of dry plates and the steady advance towards perfection in photographic apparatus makes picture-making a pleasure, where before it was very laborious.

Taking these things into consideration we should have photographs produced of a very high order. From my own observation I am led to the conclusion that there is not enough attention paid to the principles of art by photographers in general. The professional gives his attention mainly to securing a perfectly sharp, clear, well-developed negative, not usually selecting his standpoint with the greatest care, while the amateur is often content to aim at anything and trust to luck for the rest. I think if amateurs would confine themselves, at least until they thoroughly understand the principles of photography, to easy subjects, they would not have so much disheartening experience.

By easy subjects I mean landscape pure and simple. Take, for instance, a lovely bit of scenery in the country, something he has admired on numerous occasions, a shady nook along the brookside or a rustic bridge, or a path along the edge of which trees with beautiful foliage grow, or if the season is spring or late autumn, the trees without foliage will have a charming effect.

When I see a man who has just come into possession of a camera, pose his family in the parlor and try to get a group of them, with a snap shutter on his lens, I feel sorry for him, knowing how disappointed he will be when he sees the result, or when I see one with his camera pointed towards the sun, trying to get instantaneous pictures of a procession, my heart aches for him, for his labor is lost.

I saw a man not long ago riding on the rear platform of a Broadway car with a small Scovill detective camera placed against his breast, trying to make views. I was angry with *that* man, because when he pressed the button his camera was not within forty-five degrees of being vertical, and when his plates were developed and the lines converged and diverged that man claimed it was the fault of the camera. At another time I saw an amateur place his camera in the doorway of a church, the interior of which was lighted through stained glass windows, and give an exposure of ten seconds when one hour would be about the right time. I offered to develop the negative for him, and what do you think he said when I asked him what he considered prevented him from getting a picture? He candidly, and without the shadow of joking, said it was undoubtedly a bad plate, and that for the future he would use a different brand. I would say in conclusion to amateurs and professionals, have a specialty if you want to excel.

If you desire to make portraits, stick to it, study it, practice it. If views, give all your attention to that branch. But above all things, don't try everything when you don't know how to do one thing right. Master the scientific part; then, and not till then, devote your whole attention to the artistic.

B. F. McManus.

PHOTOGRAPHING ON WOOD FOR ENGRAVING PURPOSES.

(Read before the London and Provincial Photographic Association.)

As photographing on wood is my subject for this evening, perhaps a few words will not be out of place on the art of drawing and engraving on wood. It is generally understood that for illustrating any journal, catalogue, etc., for printing type-high in the ordinary press, engraving must be resorted to in some way or another, either by wood-engraving, photo-zinco, or what is termed the half-tone relief process, which is very much used of late for illustrating principally pictorial or portrait work; but there is no process yet to equal first-class wood-engraving for mechanical and kindred subjects.

To produce an engraving for this purpose, you must either draw or photograph the subject on the wood, the material used being boxwood, cut endway of the grain, and finished to a true and smooth surface. To draw upon this it must first receive a preparation of either zinc or flake-white to facilitate the drawing. When drawn it is given to the engraver to cut, then from him it is passed to the electrotyper, who takes as many electros as are required, and from these the actual printing is done.

When the artist makes a drawing upon the wood, he does not trouble to draw every line by which degrees of shadow are represented in the engraving; he merely shows the light and shade, and leaves the engraver to translate these shades into lines or stipple, according to which would be most effective.

In most of the periodicals of the day we know that many of the engravings have been photographed on the block from the original design or drawing, thus eliminating any chance of error on the part of the artist in making his reversed drawing on the wood. The application of photographing on wood has become so successful in facilitating the work of the engraver that it has come into general use of late, but all photographs on wood are not altogether satisfactory to the engraver, there being ofttimes a film left which sadly interferes with the cutting of fine work.

Photography was applied to wood engraving purposes by a Mr. Sperge in 1859, and his process was published in the *Photographic News* of December 16th of that year. It consisted of giving the wood a coating of albumen and then of gelatine; when dry, sensitising with a solution of silver nitrate, and the printing operation performed as for paper; it was then fixed in a hot solution of hydrosulphite of soda to remove the gelatinous matter, which would otherwise cause great inconvenience to the engraver in cutting.

Coming to the process I am now using, and which I will demonstrate before you this evening, I can state that in no case does it stain the wood, and one can make more certain of obtaining a good image than by any other printing-out process.

In the first place the block must be prepared in such a way as to give it a uniform color, and to fill up the pores of the wood to prevent staining, this being effected by sprinkling a small quantity of zinc-white and adding sufficient albumen, spreading with the ball of the hand until the coating is even and smooth, and finally finishing with a camel-hair brush. This operation requires some practice to perform successfully. If rightly coated,

it will not give any trouble to the engraver, not even with the finest tints. All blocks will not not require the same amount of albumen and zinc-white, as some are more porous than others. The right proportion can only be obtained by experience. When perfectly dry, sensitise by coating as you would for a collodion plate with the following solution :

Ether	5 oz.
Alcohol	5 "
Pyroxyline	20 gr.

When the pyroxyline is dissolved, add 75 grains silver nitrate dissolved in the smallest possible quantity of water. It is best to keep the above solution in the dark-room. This solution gives a slight film, which must be removed from the block before printing ; to do this, use cotton wool saturated with the following solution:

Ether	5 ounces
Alcohol	5 ounces

Dry, and coat again with the sensitizing solution before quoted, and apply cotton-wool saturated as before. By giving the block a double coating of collodion, the image prints more rapidly and to a better color. The block is now absolutely left without any film, and is ready for printing under a reversed negative.

The most simple and quickest method I have found for fixing the negative and block together for printing is by brass clips made for the purpose.

These work very well up to whole-plate size, but for larger blocks I have an apparatus of my own invention which I shall have the pleasure of showing you. The time required for printing varies according to the intensity of the light and the density of the negative. With a bright day at this time of the year, with an average negative, half to three-quarters of an hour will be found sufficient ; with magnesium ribbon, about six or eight feet, burned at a distance from six to twelve inches away from negative, will be found ample.

The negative is now removed, and the print is fixed for two or three minutes in a strong solution of hypo-sulphite of soda, the block then being washed for about half a minute, or even less, when it is placed on its edge to dry, which will take some few minutes. Blocks treated by this process can be produced ready for the engraver under the hour.

W. J. Rawlings.

Notes and News.

Mr. E. O. Zimmerman, of Zimmerman Bros., has been elected an alderman of St. Paul.

H. McMichael, of Buffalo, ex-President of the P. A. of A., has received his diploma won at the Vienna Internatonal Exhibition, under the patronage of the Royal House of of Austria. The diploma bears the autograph of the grand duchess, Maria Theresia, sister of the Emperor.

Miss Adelaide Skeel, who has contributed so many bright photographic stories to this magazine, proposes now to issue them in book form. The collection is in the hands of the publisher who is anticipating a lively sale for them.

"I cannot refrain from expressing my appreciation of the illustration in the last issue" [May 20th], writes Dr. C. D. Cheyney, of Hoboken. "It is to my mind one of the best views which you have brought out. The spirit of the woods is in the picture."

The Stuber Dry Plate Co. informs us that their factory at Louisville, Ky., is now completed, and their Demonstrators were started out on the road the 26th of last month. We have not yet ourselves had the pleasure of testing the excellence of the Stuber Dry Plate, but if it may be judged by the high quality of work which the Messrs. Stuber turned out when they were proprietors of a photographic gallery, it will at once take rank as one of the standard plates of the country.

From a Letter by a Chautauqua Student to his Instructor.—I must tell you of an incident that happened to me in Trinidad. I was at the house of a photographer in Port of Spain, making use of his dark-room to change plates. I got into conversation with him about a great many things he wished to be informed of ; he also asked if I could recommend a journal devoted to the art-science. I, of course, mentioned THE PHOTOGRAPHIC TIMES, told him how much I liked it myself, and spoke of its general fine character. The next afternoon I had occasion to call on him again, and lo and behold, I found him reading a copy of your journal. It had come with the morning mail, and he was highly pleased with it. You may hear from him before long. I also spoke to him about the Henry Clay camera, but he knew all about it and had concluded to get one with the next order sent to the States.

F. H. C. (of Boston).

The Providence Camera Club has arranged to have an Excursion down Naragansett Bay, Friday, June 17, 1892. Steamer Pomham has been chartered for the day, and will leave the Continental Steamboat Co.'s wharf at 9.45 A. M., after arrival of trains from Boston, Hartford, and Worcester, proceed down the river to Rocky Point, arriving a little past 11 o'clock.

At 12.30 a Rhode Island clambake will be served.

At 2.30 P. M., the steamer will take the party across to Bristol Ferry and up Mount Hope Bay as far as time

will permit, run into Bristol, and then proceed to Providence, arriving at the dock at about 5.30 P. M.

Representatives from all the clubs in the New England Lantern-Slide Exchange, Mystic, Lynn, Boston, Portland, Springfield, Hartford, Waterbury and New Britain are expected to attend. A cordial invitation is extended to all other photographic societies and interested amateurs to join in making this a successful gathering of amateur photographers of New England.

A meeting of the New England Lantern-Slide Exchange will be held on this day to elect a Secretary and make arrangements for the coming year.

Excursion tickets from Providence, including dinner, $1.25, may be obtained from the Secretary of the Providence Camera Club, Joseph A. Miller, Jr., Room 25, Butler Exchange, Providence, R. I.

SCREENS FOR PHOTO-ZINCOGRAPHY.

THE possession of a good screen is quite half the battle in producing a good half-tone zinc block, and, unfortunately, it is very difficult to obtain. The old methods of using wire gauze or a paper print from a ruled copper or steel plate are, to all intents and purposes, obsolete—the first on account of the impossibility to obtain a piece of gauze at all perfect, and although the imperfections were not so prominent in the original, in the zinc block they were startlingly so; the second method because it is difficult to get a print sufficiently black to give the requisite clearness to the lines. The latest improvements are two—first, to rule the lines upon a glass plate, and fill them up with opaque pigment, and use the plate as a screen, or to use the ruled plate as a matrix, and by photographic means make screens from it. Another plan is to coat a glass plate with an opaque film, have this ruled one way only, and then photographed. These screens are necessarily expensive—first, because of the difficulty in getting a plate of any size ruled absolutely perfect, and unless it is perfect it is of no use; secondly, when the ruled plate is obtained, the making of perfect copies is a work of great difficulty. The collodion process alone can be employed, and any one who has worked at it knows the difficulty in getting negatives free from blemish.

Here is the simplest method to get good screens: Procure a sheet of best patent plate, one-eighth thick, 18 x 24, absolutely free from the slightest scratch or imperfection, clean this thoroughly, albumenize it; when dry, coat with a very powdery collodion (iodized), sensitize, drain, expose to the light, flood with iron developer, and let this act till the film is black; wash thoroughly, then immerse in the cyanide solution, wash again, then bleach in solution of nitrate of lead, and of ferricyanide of potash, or of bichloride of mercury; wash thoroughly, then blacken with sulphide of ammonia; wash, and dry. Now, if the collodion used is not of a horny nature, such a film will bear ruling with 100 lines to the inch, without the slightest trace of tearing or dragging, and when so ruled with diagonal lines (not crossed), can be used to make good screens up to 15 x 12 inches, as fine as will be useful. Such a ruled plate is erected in a dark-room window, a sheet of clean ground-glass outside it, about 6 inches away, and a white reflector at an angle of 45 degrees, fixed outside the ground-glass; inside the room a good substantial camera, fitted with a first-class lens, must be put, exactly parallel with the ruled plate; the lens cannot be used up to its full covering capacity, as it is required to give absolute sharpness up to the corners; for such screens, 12 x 10, a lens of 20 inches focus is necessary. A fine focusing glass must be used in adjusting the focus.

The negatives are made upon patent plate, the process used being dry collodion. To get the crossed-lined screen *two* such negatives are made, and when finished and dried are cemented together with Canada balsam, the two films being inwards, this gives a screen sealed against any accident except breakage, and the two glass plates have no detrimental effect upon the result.

In America these screens can be purchased ready for use; the prices are high, but they are well worth it. Here are a few of them. 124 lines to the inch—7 × 5, $12; 12 × 10, $30; 132 lines to the inch—10 × 8, $30; 12 × 10, $50. These are cross-line screens, sealed; single lines, not sealed, about half price.

COMMON MISTAKES AND NEEDLESS PRECAUTIONS.

REMARKS made to the writer, questions asked of him personally and by letter, queries in the photographic periodicals and answers to them, all alike show that a surprising amount of ignorance about the principles of the construction and the properties of the apparatus used in photography, and the manner of using them, prevails among those even who have long been working at photography. To what may this ignorance be attributed? Partly no doubt to errors in many of the manuals published on the subject of photography, written often by men fully competent to give instruction on some parts of the subject, but who have not so full and accurate a knowledge of other parts, and who therefore procure information on these second-hand, and repeat it without thoroughly testing it for themselves and so sometimes perpetuate errors. To write a complete treatise on photography, the author should be at once an optician, a chemist, and an artist, qualifications rarely found united in one person, and he should also be able to express himself in such a manner that the information he imparts should not only be accurate, but also intelligible to those who have not studied the sciences of optics and chemistry, and are not familiar with the technical terms of art. Many writers unfortunately write entirely above the heads of ordinary photographic workers. It is the object of the writer of these pages, not to write a complete treatise on photography, for which indeed he does not possess the necessary qualifications, but to point out a few of the misconceptions under which many labor, and also to point out how many of the elaborate precautions which many take in their working are absolutely unnecessary.

First a few of the common misconceptions on the subject of lenses will be touched upon. Lenses are called according to their construction "portrait," "landscape," "rapid," "wide-angled," "narrow-angled," "singles," "doublets," and so forth; and are also often spoken of by the names of the plates in common use, as quarter-plate, half-plate, whole-plate lenses, etc.; and it is often thought that if we wish to take a portrait a "portrait" lens must be used; that a "rapid" lens is only suitable for instantaneous

exposures, and that in some mysterious if not magical way, a "wide-angled" lens can get a considerable extent of view on a plate of given size which a lens of the same focus called by a different name cannot do. In the course of conversation with one of our leading opticians, the writer was told that it was by no means an uncommon thing for application to be made for a lens of six inches focal length, which will include an angle of 90 degrees on a quarter-plate, and that such requests came not merely, as might be expected, from beginners in photography, but also from professional photographers who have been for years engaged in the practice of the art. The writer repeated this story as a good joke to a friend, an amateur of some years' standing, but he replied that he could not see precisely where the absurdity came in. Again it is recommended in a well-known work, that single lenses of long focus and narrow angle, such as those recently brought out by Dallmeyer, should be used in preference to doublets, as giving truer perspective; and the statement is so made that it might be understood to imply that a *single* lens of 12 inch focus, used on a whole-plate, would have an advantage over a "rapid" or "wide-angled" *doublet* of the same focus on the same plate. But, as a matter of fact, all lenses of the same focal length will on the same plate take in the same amount of subject, and with stops of the same size will be practically of equal rapidity, the slight loss of light due to extra reflections and absorption by extra thickness of glass being entirely negligible. Wherein then lies the difference between lenses of different form? Let us imagine that we have a camera, the focusing screen of which measures 12 inches each way, and that we have four lenses all of 6 inch focus —No. 1, a narrow-angled single landscape; No. 2, a wide-angled landscape; No. 3, a rapid doublet; No. 4, a wide-angled doublet. Let us put on each of these lenses in succession, using stops of the same size, say *f*/32, and focus the same view on the screen, keeping the position of the camera unchanged; we shall find results something as follows: With No. 1 we shall get an illuminated circle of about 5 inches diameter, with No. 2 of 8 inches, with No. 3 of 10 inches, with No. 4 of 13 inches. Now let us take a series of sheets of cardboard 12 inches each way, and cut centrally from them apertures of $4\frac{1}{4} \times 3\frac{1}{4}$ in., $6\frac{1}{2} \times 4\frac{3}{4}$ in., $8\frac{1}{2} \times 6\frac{1}{2}$ in., and 10×8 inch respectively. If we cover the screen with the card having the quarter-plate aperture the view will appear practically the same whichever lens we use; but if we use the card having the half-plate aperture, then No. 1 will show dark corners, so that we cannot use it for plates larger than $4\frac{1}{4} \times 3\frac{1}{4}$; in like manner we shall find that if we use the card having the whole-plate aperture, then No. 2 will show dark corners, so that this lens is not suitable for plates larger than $6\frac{1}{2} \times 4\frac{3}{4}$. And again, if we use the card having the 10×8 aperture, then No. 3 will show dark corners, while No. 4 does not. Thus, when we speak of a lens of a certain focus being wide-angled, we mean that it will cover a certain sized plate without showing dark corners, which a narrower angled lens of the same focus will not do; but if the lenses are of the same focus the objects, as far as they are shown on the focusing screen, will be of the same size. If then we wish to cover a plate of a certain size, say 12×9, with a narrow-angled lens, we must use one of a larger focus, which will make the objects larger than a wide-angled lens of shorter focus capable of covering the same plate would do. If, for example, we use a lens of 18 inch focus on a 12×9 plate, we shall get in the same amount of view as if we used a 6 inch lens on a 4×3 plate, but each object will be three times as high and three times as wide. Thus, when it is said that a long-focused landscape lens gives truer and more pictorial results than a doublet, it is implied that the doublet is a short-focused one, and the statement simply means that it is advisable not to embrace too wide an angle in any view we take.

Let us now compare together a narrow and wide-angled landscape lens,* say of 18 inch focus. If we wish to make prints of 12×9 inches the narrow and wide-angled lenses will produce the same result, the only difference being that we are not using the marginal ring of the wide-angled lens at all, as we may see by cutting out of black paper a circle of the same size as the wide-angled lens and cutting from it a concentric circle with the same diameter as the narrow-angled lens, and pasting the opaque ring so formed on the wide-angled lens, thus reducing its working diameter to the same size as that of the narrow-angled. The illuminated circle on the screen will then be the same with both lenses, and the angles included the same. Thus by using the smaller lens we reduce the weight we have to carry.

What advantage has a "rapid" over a "wide-angled doublet"? Simply this, that when it is used for a comparatively narrow angle it is possible to use a larger stop, as the optician can more perfectly correct the various aberrations for rays making a small angle with the axis in lenses of the "rapid" than in those of the wide-angled form; but when the angle embraced is such that we must stop each down to *f*/16 or *f*/23, the "rapid" lens has no advantage, and the "wide-angled" doublet is smaller and lighter.

It is sometimes thought that wide-angled lenses have a tendency to produce central flare. But this is not the case. "Flare spot" proper is rarely met with in any but single lenses, and is due to the image of the stop, formed by reflections at the internal surfaces of the glass, being brought to a focus on the plate when properly placed for taking a view. This reflected light can be so much diffused as to be of no importance, by properly placing the stop. But with all lenses the centre of the field is more strongly illuminated than the margins. This is owing to two causes: First, because for rays of light parallel to the axis the stop is circular, while for rays oblique to the axis the stop is practically an ellipse, whose longer axis is equal to the actual diameter of the stop, while its shorter axis becomes less and less as the rays are more and more oblique; secondly, because the margins of the plate are further from the stop than the centre of it is, and consequently the principle that the intensity of light diminishes in the inverse ratio of the square of the distance comes into play. Suppose, for instance, that the plate is 12 inches long, the distance from the stop to the centre of the plate 6 inches, the square of which is 36, the diameter of the stop 1 inch, then the distance from the stop to the ends of the plate will be the square root of 72, and the smaller axis of the ellipse, described above, will be about seven-tenths of an inch; hence, from the first cause above described, only seven-tenths as much light gets obliquely

* The following remarks apply especially to Wray single lens, which the writer has had fuller opportunities of examining than corresponding lenses of other makers.

through the stop as gets perpendicularly through it; and this, owing to the greater distance of the ends of the plate, gets reduced twice as much as the light which proceeds to the centre of the plate; hence the illumination at the ends of the plate is only about seven-twentieths, or 35 per cent. what it is at the centre. In other words, the centre of the plate gets really about three times the exposure that the ends get, quite sufficient difference to be noticeable in the negative, which will show a considerable falling off of density towards the edges. If the lens tube is long and the stop nearly equal to the diameter of the lens, there will be a similar falling off of illumination, owing to many of the oblique rays striking the interior of the lens tube; but this may be cured to a great extent by using a smaller stop.

It is sometimes imagined that to take a good portrait a "portrait" lens must be used, but this is a mistake. A portrait lens has no advantage over a rapid doublet or single landscape, save that it will work with a larger stop, and is consequently more rapid, but its angle is narrow; so to get a picture of a certain size, a long-focused lens must be used, and as the length of focus increases, depth of focus decreases in a still greater ratio; hence, except for small pictures, a portrait lens must be stopped down to gain depth of focus; and when it is necessary to stop down to *f*/8 it has no advantage over a rapid doublet, and when to *f*/11 or *f*/16 it has no advantage over a single lens, and in equality of illumination it is inferior.

Some portrait lenses, however, have an arrangement for diffusion of focus, by which a certain amount of depth of focus is obtained by the sacrifice of absolute sharpness at any point of the picture; this is by many considered a valuable property of this form of lens, but the same effect may be secured with rectilinears and single lenses by other means.

The principle on which stops work is a sore puzzle to many. It is not unfrequently stated that stops prevent any part except the centre of the lens being used; if this were so, why should any lenses be larger than the largest stop used? But this is not the case; stops practically divide the lens into an infinite number of circles, of course overlapping each other, and the images of different points are formed by different circles cut out, as it were, from the lens. The effect of the stop is to make the cone of rays, proceeding from the various points after refraction through the lens, more acute than it would otherwise be, thus giving at the same time greater "depth of focus," as it is called, and greater flatness of field, and thereby improving the definition. In the case of those doublets in which the distance between the lenses is considerable, it also tends to equalize the illumination. At the same time a smaller stop reduces the light and entails a longer exposure; and it is generally said that a small stop reduces contrasts, giving the picture a flat look, but this is hardly borne out by carefully conducted experiments. If two plates of the same make are exposed on the same view with the same lens in quick succession, one with stop *f*/16 for, say, 5 seconds, one with *f*/64 for 80 seconds, and the negatives developed side by side in the same dish, little difference in comparative density and gradation will be observed. Slow plates are the best to use for this experiment, as the exposures are more easily timed, and it is well to test the accuracy of the marking of the stops, for it is by no means an uncommon thing to find a stop marked *f*/16 the diameter of which is not accurately four times that of the stop marked *f*/64.

Enough has now been said about the optical side of the subject of this article. They are equally numerous misconceptions connected with the chemical side. A few will now be mentioned. It is often imagined, and naturally so, considering the complicated formulæ published, with this or that odd number of grains of this or that substance to an ounce of water, and so many parts of one solution to be mixed with so many parts of the other, that the greatest accuracy in weighing and measuring is necessary; and that plates of such and such a make will be ruined if a tenth of a grain of too much pyro., or half a minim too little ammonia is used in an ounce of developer. But in reality no such minute accuracy is needed, and no advantage comes from the use of complicated formulæ. What are generally called 10 per cent. solutions (though the name is not a very fortunate one) of the developing, the accelerating, and restraining agents are the the most convenient forms to use. To make a "10 per cent." solution of a liquid is an easy matter; it is done by mixing one part of the liquid, by measure, with nine parts of water; but it is hard to say what, strictly, a 10 per cent. solution of a solid is. If, however, one ounce avoirdupois of the solid is dissolved in water and the bulk of the solution is then made up to 9 ounces 55 minims, then 10 minims of the solution will contain one grain of the solid, and this is probably what is meant; but such great accuracy as this is not needed—it will be sufficient to dissolve one ounce avoirdupois in 9 ounces, by measure, of water. When once these solutions are made it is easy by pouring 10, or some multiple of 10 minims of the various solutions into a measure and filling it up to the ounce mark with water, to make a mixed developer of any strength required, with sufficient accuracy for all practical purposes.

Many photographers take unnecessary precautions against the access of light to the plate, both while it is in the dark slide and also during development. If the dark slide is properly made, no light should get to the plate, even if the slide be exposed to bright sunshine; so that wrapping up the dark slide and drawing the shutter while the camera is muffled up in the focusing-cloth are needless precautions if the camera and back are light-tight; and if they are not, it is better to have a plate fogged and the weak point discovered and corrected, than to save the plates by precautions which are sure on some important occasion to be neglected; moreover the focusing cloth, attached to the camera during exposure, only adds to the risk of the camera being shaken by the wind. It is well to have full confidence in one's apparatus, having of course fully assured one's self that it is trustworthy. Some suppose that if the black gets worn off the stops this may produce flare or fog, but there is little danger of this; the only light which the inside of the stop can get is that reflected from the lens, and unless this is concentrated to a point on the plate it will be too feeble to do any harm; lenses are often tested by their makers before any blacking is put on the stops, and the writer has been informed by a well-known optician that no injurious effects from the stops being unblacked has been observed.

Many dark-rooms are far darker than necessary; it is quite possible to have plenty of light to work by with comfort and yet not to get the plates fogged; yellow or orange light is far more pleasant than the deep ruby light so often used, and which indeed is necessary when working with isochromatic plates. It is indeed surprising how little diffused and reflected light will affect the plate; the writer

has frequently, when his dark-room has been too cold to work in comfortably, developed so-called "30-time" plates by the light of a non-actinic lamp in a room in which a fire has been burning, having simply taken the precaution to hang a rug over the backs of three chairs in front of the fireplace, and he has not found that the glow of the firelight reflected from the walls and ceiling has done the plates any injury. After a plate has been developed and washed, it may be taken out of the dark-room into weak daylight for fixing without any risk; and if the dark-room is small it is well to have the fixing bath outside it so as to avoid any risk of contamination of the developer by hypo. being accidentally mixed with it, the smallest amount of which will generally cause stains. Still it is well not to expose an unfixed plate to a strong white light, or veiling of the shadows may occur.—Rev. T. Perkins, M.A., *in the Photographic Quarterly.*

PHOTOGRAPHY IN COLORS.

Lecture at the Royal Institution.

Mr. Frederick Ives, of Philadelphia, delivered his second and concluding lecture on "Photography in the Colors of Nature" before the members of the Royal Institution, and showed some remarkable views of Yellowstone Park produced in colors by means of his composite process. Mr. Ives first explained in detail the principles upon which the three colored screens which he uses in producing his triplicate negative are selected, illustrating the theory by means of magic lantern views of the spectrum; but the greater part of his lecture was devoted to the mechanical aspects of his invention—in particular, the means by which the three images are superimposed. With the subject of the production of permanent color prints by his process Mr. Ives dealt very briefly; indeed, he frankly admitted that such prints could only be produced by a complicated process which required a considerable scientific knowledge of the laws of color sensation on the part of the operator, and at a cost which precluded the possibility of profitable manufacture. He claimed, however, that by the application of his invention to the helio-chromoscope he had actually solved the problem of photography in the colors of nature, since the illusion thus produced was more perfect than could possibly be obtained by means of a photographic print. He promised that his camera, in which the triple negative is produced on a single sensitized plate by means of a single lens with a single exposure, would shortly be obtainable everywhere by amateurs, who would thus be enabled by a process as simple as that of the production of an ordinary photograph to make a transparency which, on being placed in position in the helio-chromoscope or behind the triple objective of a specially fitted magic-lantern, would perfectly reproduce the colors of nature.

In conclusion, Mr. Ives showed by means of the magic-lantern some half-a-dozen views in Yellowstone Park, and one or two portraits, the colors of which were wonderfully natural, though the lecturer explained that the tints could only be reproduced in their full brilliancy by a lantern illuminated by sunlight or the electric light. A photograph of flowers of most brilliant hues was shown in the helio-chromoscope.—*London Daily Graphic.*

Directions for Working Bradfisch's Perfected Aristotype and Matt Surface Paper.—Negatives of ordinary strength yield best results. Print two shades darker than desired when finished. After printing wash in fresh cold water, placing the prints face down during the entire operation. Change the first three waters quickly, and prolong the washing until the entire free silver is removed and the water remains absolutely clear. Prints are only then ready for toning.

Gold Bath.

Water	32 ounces
Bi-carbonate of soda	50 grains
Acetate of soda	50 grains

Let this stand about half an hour, and add gold to tone (1 grain for every twenty-five cabinets). This bath can be used over and over again by adding gold as required. Never add gold when prints are in bath. As soon as the bath shows an intense bluish-black color and precipitate it should be thrown away. It will generally last for months. Tone prints until the half tones and high lights are cleared, showing a bluish tint by transmitted light. Some of the red in the shadows must be left in the print, or the same will be over-toned. After toning place in fresh water, and give prints two washings. Then fix.

Fixing and Hardening Bath. Remains Clear.

Water	30 ounces
Acid sulphite of soda solution	40 minims
Powdered alum	3 ounces
Mix in order given, and when dissolved add	
Hypo	3 ounces

Can be used at once. Fix about twenty-five minutes (not less). Use fresh every time, or mix with new bath next day, half and half. After fixing wash thoroughly in fresh water. Good washing, by changing water quickly for one or two hours, is better than washing in still water over night. Mount and burnish as usual. Cold burnishing gives aristo paper a gloss like albumen; hot burnishing equal to a glace finish.

The best results on the B P. paper are obtained by separate toning and fixing, but for those who prefer a combined bath we put up one that is especially adapted to the N. P. paper. No other combined toning and fixing bath can be used with this paper without producing yellowness and destroying the properties of the print.

The Editorial Table.

THE RUDELL CAMERA.

In calling your attention to this camera we feel confident that we are presenting to your notice the most complete and perfect camera in existence, and it is with pride we enumerate some of its many superior points.

In size and form it is one of the neatest, being but 6 x 6½ inches square, and 10¼ inches long, holding one dozen 4 x 5 plates—smaller by some inches than any other 4 x 5 camera. It is made for glass plates which will be found, after experimenting with the numerous films, to give the finest results. Yet to those wishing to use films, they can use the cut films as well as the glass plates.

It is the quickest working camera, for with a little practice the whole dozen plates or films can be exposed in about as many seconds.

It is the simplest and easiest working camera, as by simply releasing the lever, raising and pressing it forward, the plates are exchanged; no need of turning a button a number of times or counting the click of revolving dial, as with a continuous film one move and your exposed plate is stored away into a separate compartment and the new plate brought into its place, the indicator telling you which

plate it is, thereby making it impossible to expose the same plate twice.

It is the lightest camera of its size, as when loaded with glass plates it weighs less than five pounds, with the cut film less than four pounds.

The ease with which the exposed plates can be taken out and developed recommends itself, particularly as it can be done so easily, as to need no light whatever in taking out the plates, and as one or more plates can be developed, at the desire of the operator, without coming in contact with or disturbing the unexposed plates. One can develop at leisure the exposed plates at any time, as the compartment will hold and protect them until wanted, which cannot be done with any other camera.

Its Focusing Indicator is situated on the finder, which enables one to focus and find the subject at the same time, and expose simultaneously.

As will be seen, the shutter is of the most simple construction, rendering it impossible to get out of order, and adapted to either time or instantaneous by one and the same movement at the will of the operator.

It will also be seen that all parts are detachable, and as the camera is arranged with a safety slide back of the lens, the whole front of the camera, focusing slide, lens and shutter can be taken out, out of doors, as the plates are perfectly protected. The lens can be detached and replaced by another of about the same focal length.

This is a great advantage, for one may wish to use a wide-angle or single lens, as the case may be, and carrying those in the pocket. They can be adjusted whenever and wherever wanted with the greatest facility, occupying but a couple of minutes of time. This cannot be done with any other camera.

The shutter being a double one makes it impossible for the strongest light to get to the lens, only when required for exposing the plate.

It is arranged so it can be used with a tripod for time exposures if desired.

It is an "ever ready" camera; that is, it is always ready for work the moment wanted, providing there are plates or films in the "carrier box." Price, $30.

THE SCOVILL & ADAMS COMPANY.

A Portfolio of the World's Columbian Exposition, illustrated by C. Graham, and published by E. P. Goodman & Co., at 815 Bennett Building, New York City, is one of the handsomest souvenir publications which has ever come under our attention. It consists of four Departments, as follows:

1.—Grounds and principal buildings.
2.—State buildings.
3.—Foreign buildings.
4.—Lagoons and Oriental buildings.

The illustrations are from original water-color drawings, and beautifully reproduced in colors. The illustrations look like water-colors themselves. The portfolio will be sent postpaid to any address for 50c.

The Scovill & Adams Co's Porcelain Pans are receiving the wide-spread recognition which their excellence deserves. They are all made of the finest material, have absolutely no blemishes whatever, and lie perfectly flat, from the smallest size to 20 x 24. The most successful photographers always use the best materials and utensils. Scovill's Porcelain Trays are unqualifiedly the best.

Record of Photographic Patents.

475,372. Process of Developing Photographic Pictures. Momme Andrésen, Germany.

475,654. Photographic Shutter. Julius R. Albrecht and Emil Ortmann, New York, N. Y.

Queries and Answers.

267 IDA D. F. wants to know of a remedy to remove silver stains from fingers and fabrics. She is afraid to use the obnoxious and poisonous cyanide of potassium.

267 *Answer.*—Why not try Farmers' solution of ferricyanide of potassium and hypo-sulphite of soda. It will remove silver stains from fingers and hands, and from garments without destroying the color of the fabric.

268 F. MANGER.—Can I take instantaneous views with the Waterbury B. lens?

268 *Answer.*—Yes, you can. A highly sensitive plate, stop 25 or 20, and an exposure of a small fraction of a second will do it. Develop with S. P. C. para-amidophenal in one solution.

Scovill & Adams Co. have attached a very convenient and reliable Shutter, "The Elite," to the Waterbury B. lens.

269 LATERNA MAGICA.—How is the gelatino-albumen emulsion of Carbutt's lantern-slides made?

269 *Answer.*—We do not know, and do not think any body but Mr. Carbutt himself knows. But we suppose it is nothing but a slow, pure bromide of silver emulsion, and the plates are called so because they are furnished with a substratum of albumen, possibly with a modicum of chrome alum added.

270 J. L. H., Penna., writes: "Would a first-class 2 x 3 lens, such as McAllister puts in his highest grade stereopticons be suitable for a portrait lens in a camera, or could it be used at all? And if it could be used would it be quick or slow in action, and what size picture would it make with full opening? There is no place for stops."

270 *Answer.*—The 2 x 3 lens of McAllister's stereopticons is suitable for the making of portraits under certain conditions. These lenses belong to a type much used in ancient times, because of their rapid action. Their focal length is about 9 inches, they are of great luminous power and will cover a cabinet card plate quite well by decreasing the aperture to a reasonable extent, to F/11 or F/15 at least. Stops must be placed at the optical centre of the objective that is, at a point between the two lenses forming the combination.

271 C. W. B.—Will you inform me whether the formulas of PHOTOGRAPHIC TIMES prescribe the use of avoidupois or apothecaries weight, and whether a pint is considered to be 16 or 20 ounces?

271 *Answer.*—Unless otherwise directed the formulas of PHOTOGRAPHIC TIMES and those in all of the Scovill publications rate the ounce at 480 grains and the fluid ounce of 480 minims, 16 of which are equal to 1 pint American measure. The English or Imperial pint of 20 ounces is not used in this country.

THE PHOTOGRAPHIC TIMES.

AN ILLUSTRATED WEEKLY JOURNAL DEVOTED TO THE ART, SCIENCE AND ADVANCEMENT OF PHOTOGRAPHY.

Issued every Friday.

W. I. LINCOLN ADAMS, Editor.

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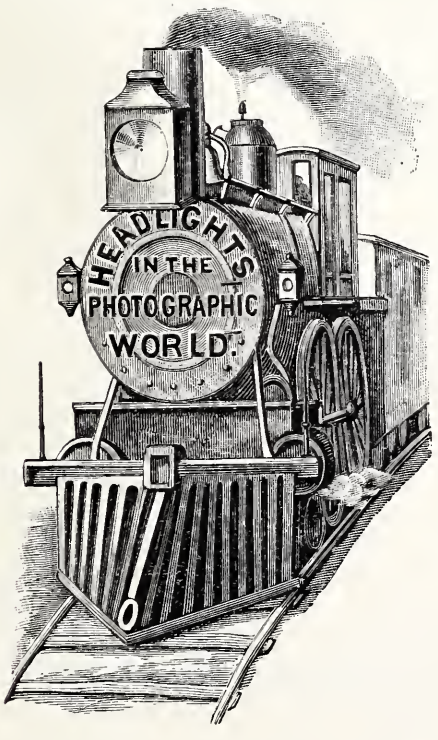
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The Practice of Photography, by Robert Hunt. London, R. Griffin & Co, 1857. Limp cloth, pp. 126.	25
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Photo-micrographs and How to Make Them. Sternberg, Boston, 1883 (pub. at $3.50; good copy)	1 00
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The Photographic Times, Vols. III., VI., IX., XI. and XIV. Bound in red cloth, $1 each; regular price, $3.

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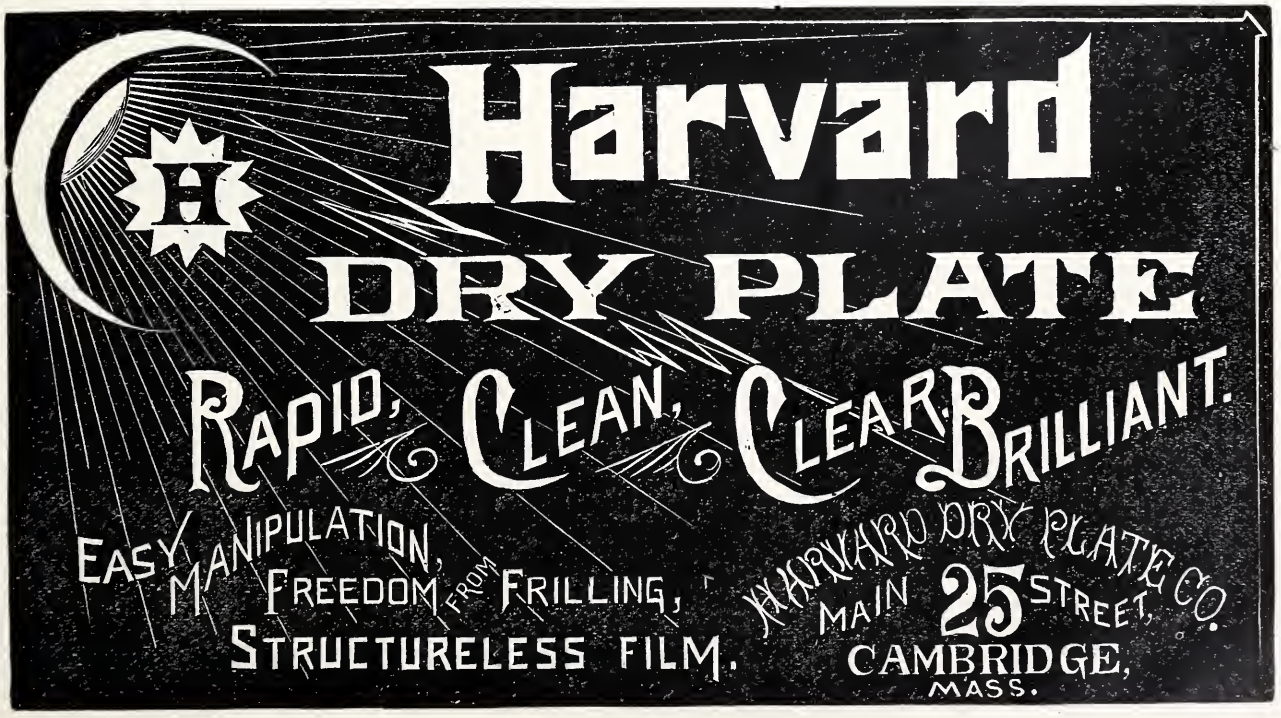
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of which we are the Sole Manufacturers. In three Series, for Studio, Architecture, Landscape and Copying.

DIAPHRAGM SHUTTER,

which stands without rival.

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For LANTERN SLIDES, Window Transparencies, and Reproductions in Black-and-White.

These Plates make the most perfect Lantern Slides, either by contact printing by artificial light or by means of the camera from larger or smaller negatives and give, at will, either engraving black or rich warm purple tones; they are also specially suitable for reproductions of line subjects for photo-lithography, when used for this purpose with our improved Pyro Transparency Developer, they give any desired density with perfectly bare glass in the high lights.

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By means of this new Developer the most perfect Transparencies can be obtained on suitable Dry Plates with the greatest facility. It is the only Developer yet discovered which will produce (on Rapid Gelatine Plates) Lantern Slides of the highest class with RICH WARM TONES and perfectly clear glass in the highest lights.

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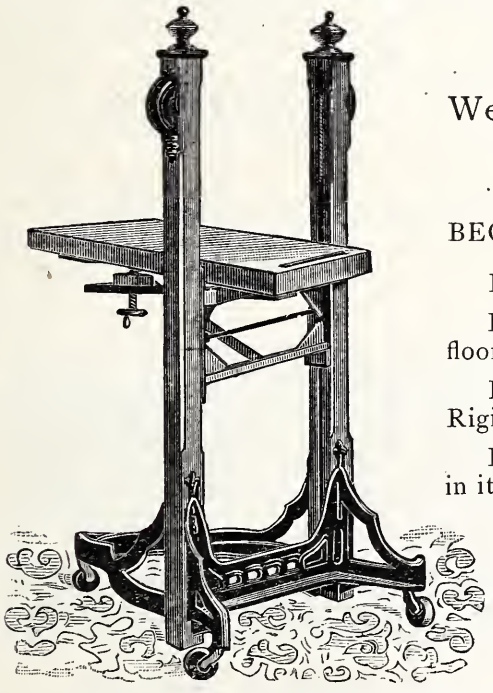
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These lenses are absolutely rectilinear; they embrace an angle of 100 degrees, and are the most rapid *wide-angle* lenses made.

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0	1 inch	3¼x4¼ inch	2½ inch	each, $20.00	
2	1 "	4 x 5 "	3¼ "	" 25.00	
3	1 "	4¼x 6½ "	4½ "	" 25.00	These 5 sizes will
4	1 "	5 x 8 "	5½ "	" 25.00	fit into 1 flange.
5	1 "	6½x 8½ "	6½ "	" 25.00	
6	1 "	8 x10 "	8 "	" 30.00	
7	1½ "	11x14 "	10½ "	" 40.00	These 2 sizes will
8	1½ "	14x17 "	14 "	" 50.00	fit into 1 flange.
9	1½ "	17x20 "	17 "	" 60.00	These 3 sizes will
10	1½ "	20x24 "	22 "	" 80.00	fit into 1 flange.
11	1½ "	25x30 "	28 "	" 100.00	

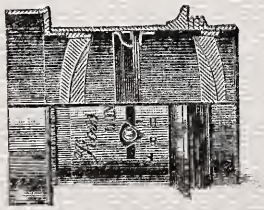
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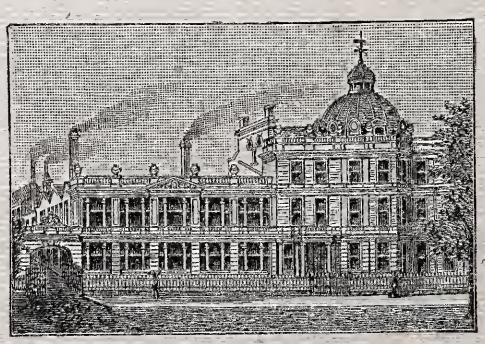
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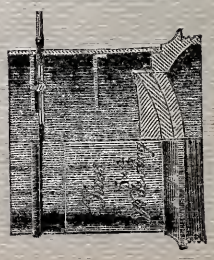
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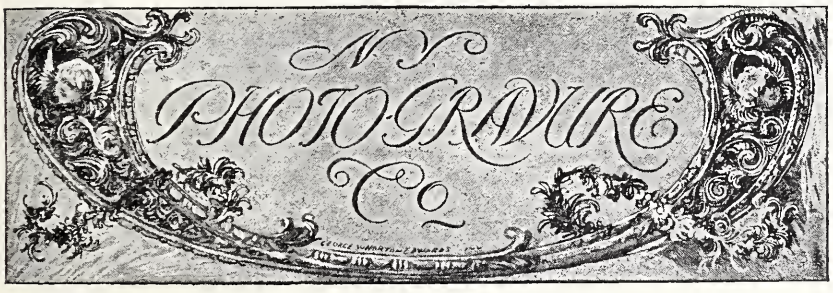
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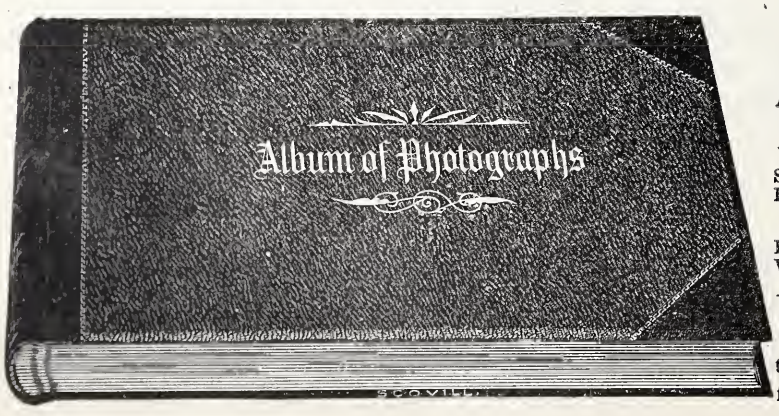
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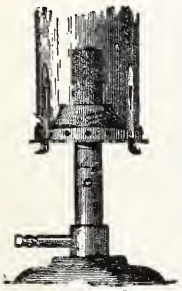


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Each album has 48 pages, 24 leaves. In them the finest card-board only is used, chemically free from anything that could injure a print.



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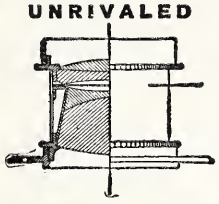
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Burning the patent sodium wick, which produces a non-actinic chemical flame and gives a flood of soft yellow light reposing to the eyesight and nerves. Guaranteed safe for the most sensitive plates. A revolution in dark-room illumination.

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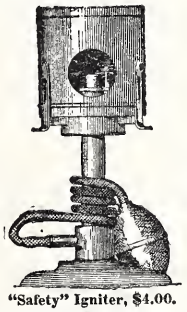
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The safest igniter to use with Flash Compound. No dangerous, uncertain and expensive alcohol flame required. Ignition produced by a glowing point.



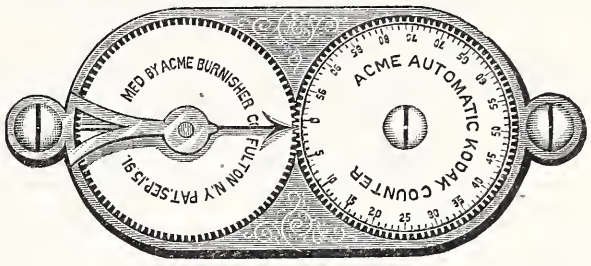
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ANY ONE CAN ATTACH THEM IN A MOMENT.
ONLY A MOMENT REQUIRED.
WORKS PERFECTLY
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The Scovill & Adams' Plain Felt Background, recently introduced, is a great boon to all Photographers, both Professional and Amateur.

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These sizes may be sent by mail on receipt of 35c. extra.

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Para-Amidophenol Developer

IN ONE SOLUTION.

An eight (8) ounce bottle containing developer sufficient for developing 100 5 x 8 negatives.

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The Rudell Camera,

An Entirely New Magazine Camera,

Carrying 12 4 x 5 Glass Plates.

Most Simple in Action. Never Misses.

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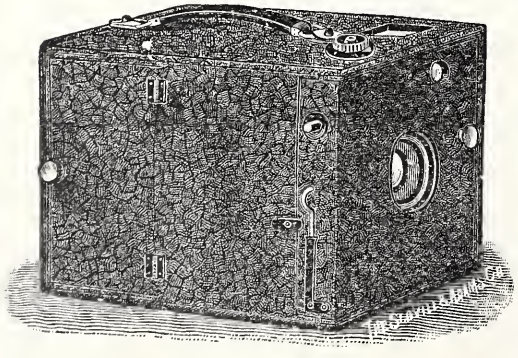
Fitted with a most ingenious Shutter, by which the plate is never exposed except during action.

AN EXCELLENT "DOUBLE COMBINATION" LENS.

Price, only $30.00.

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For commercial purposes, for instance, such as the reproduction of photographs for illustration, it has been demonstrated that collodion "wet" plates are better than dry plates. For the use of the amateur, on the other hand, dry plates are much better than wet plates. Though many new supports have been tried, the sale of glass dry plates is larger now than ever before. Where only a few pictures are to be made on one day's outing it is likely that the experienced photographer will always use dry plates or cut films.

If he is going away for a summer vacation, or for a trip abroad, and expecting to to make a large number of pictures, he will procure a roll-holder loaded with continuous films. This will save him the bother of developing while he is away from home, and of changing plates; but he cannot well know what results he has secured until he has exposed the entire roll and has had it developed.

For those who want to use celluloid instead of glass plates, and are not willing to trust to good luck in the exposure of the complete roll of film, we offer with the "TRIAD" camera a *double* film holder which is very light. If the amateur carries six of these holders (loaded with twelve films) he is well supplied for one day · that is, if he is prudent and aims to get only really good pictures. At night, either in a photographic studio or in his own hotel room, the exposed films may be put away into safe receptacles, and another lot of unexposed films substituted for them.

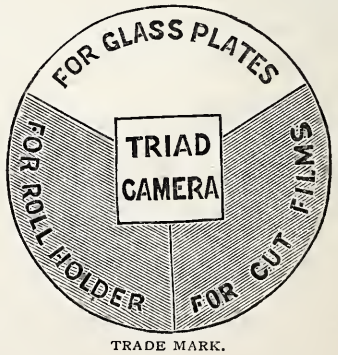
The TRIAD Camera is fitted with the latest improved Roll-Holder for continuous films, two double holders for glass plates, or two double film holders, if the latter are preferred.

This Camera is fitted with an Instantaneous Rapid Group Lens with easily interchangeable diaphragms —the most satisfactory detective camera lens ever made. It has a finder so constructed that the image is the same as that on the ground glass, though of course it is proportionately diminished in size. Usually the finder in a Detective Camera shows simply the image on the plate, but not its relative size and proportions. The Instantaneous Shutter in this camera is provided with a speed adjuster which works from the outside, and the focusing device and scale are conveniently near the finder. This is very important when one is trying to photograph rapidly moving objects.

For timed exposures use a tripod (easily adjusted to the camera by the plate underneath), open the door at the back, so that the image on the ground glass can be easily seen, set the shutter with the opening opposite the lens, and bring into use the felt cap which fits the opening in front of the camera. By complying with these simple requirements you have a complete camera for timed exposures.

	Price complete.	Price without Roll-Holder.
4 x 5 Triad Camera, with Roll-Holder, two Double Dry Plate Holders, or two Cut Film Holders	$35 00	$25 00
Extra 4 x 5 Triad Double Dry Plate Holders		1 25

Holders for Cut Films, same prices as above.



TRADE MARK.

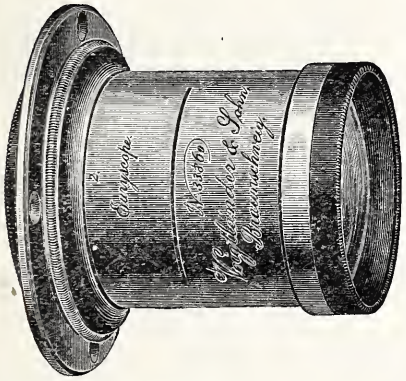
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IV.—The "*New Matt-Surface*" paper when sensitized will keep fresh for a long time if properly stored.
V.—The price has not been advanced.

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ARISTOTYPE PAPER.

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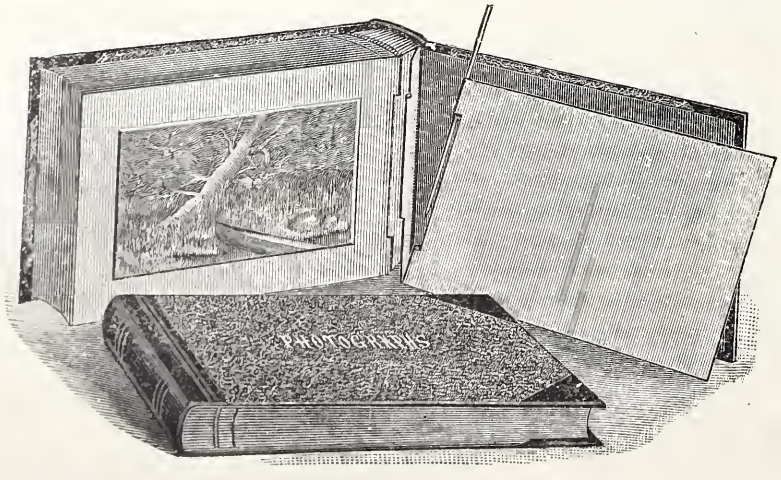
This paper prints with negatives of **ordinary** density, and gives **rich** and **brilliant** results, with clear and prominent whites.

It does **not** stick, nor does the surface of the print rub off.

THE PERFECTED BRADFISCH TONING AND FIXING SOLUTION. is recommended for use with Aristotype Paper.

It works perfectly and is always clear.

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Nos. 1, 2, 2½, 3, 3½ and 4 are handsomely finished in Morocco, half leather bound, with gilt title, and enclosed in a neat box. No. 5 is extra gold finish.

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PHENIX FERROTYPE OR
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PHENIX POURING BOTTLES.

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The Suter Lens in Canada.

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Sirs:—In the possession of the Suter Aplanatic, No. 5 B, I consider I have as fine an instrument as money and skill can produce. For general all-round work, indoor and out, I have no hesitation in saying these objectives are unequaled; their clear definition, flatness of field, and great rapidity, render them capable of faithfully fulfilling the most exacting requirements. There *may* be better; but those who venture on the discovery of such will, I fancy, find them remarkably similar to hens' teeth. Yours truly, JNO. NICHOLSON.

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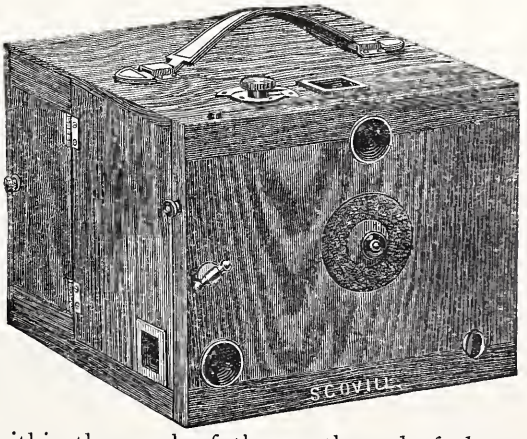
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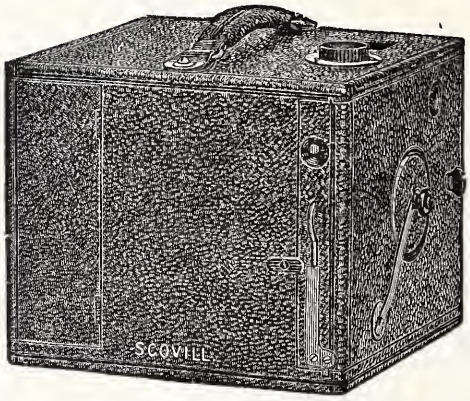
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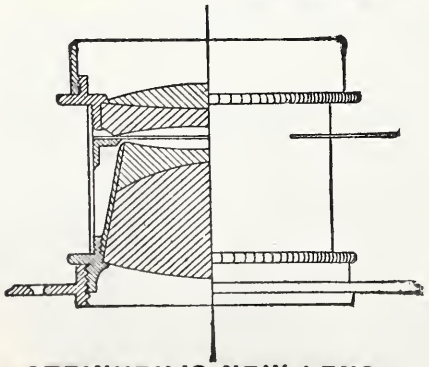
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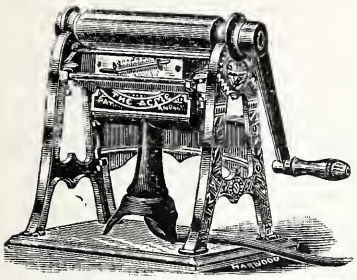
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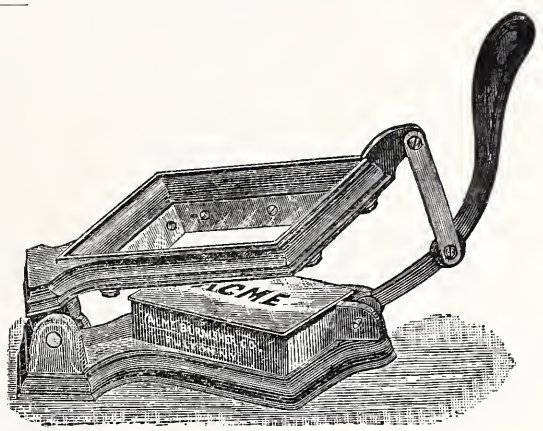
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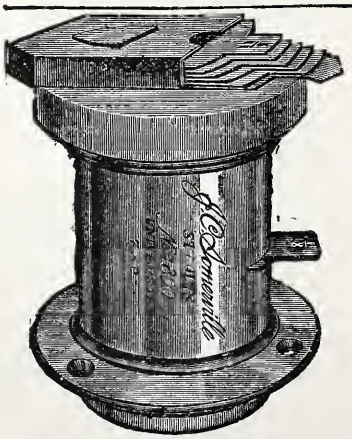
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On February 15th, the first edition of 16,000 copies of 'The American Annual of Photography and Photographic Times Almanac" for 1892, being nearly exhausted, the publishers issued a circular inquiring concerning the number of books unsold, if any, and also concerning the demand which still existed for the book, with a view of determining the advisability of issuing a second edition. In response to this circular about fifty answers were received, from which the following are quoted at random:

Felix Reifschneider, Jr.: "We have not got one copy of the fifty copies we had. They sold very well, twenty-five the very first day I had them in."

Thos. H. McCollin & Co.: "'The Times Annual' for 1892 is a great success. We have had four lots and have only a half dozen copies on hand. There seems to be a steady demand for it."

W. C. Russell: "Have just sold out, . . . and will say I have never yet been stuck by having any of the American Annuals left on hand."

F. Hendricks & Co.: "We have on hand only five copies to-day of 'The Times Almanac.'"

Sweet, Wallach & Co.: "We have disposed thus far of over 250 copies. Think we will want more later."

Oscar Foss: "Of the 175 copies received from you not one now remains. I have ordered a few more copies, which will, I believe, supply the demand here. If I had ordered 250 copies instead of 175 I should have had no trouble in disposing of them this year."

B. Y. Morris: "I am entirely out of 'Annuals,' and will include in my next order some more."

B. C. Norrell: "My stock is exhausted. I may be able to dispose of more copies."

H. A. Hyatt: "May want about twenty-five more to carry me through the year."

Mullett Bros.: "May want about twelve copies more."

Charles Lawrence: "We are entirely out, and shall need a few more copies."

Zimmerman Bros.: "Have sold twice as many as we expected."

J. C. Sommerville: "We have disposed of 100 copies, and are not certain that we shall require any more."

Douglass & Shuey Co.: "Paper, all gone."

Robert Clark & Co.: "We have none left in stock of the 'American Annual of Photography and Photographic Times Almanac' for 1892."

Kimball & Mathews: "We are about out of the 'Annuals.'"

M. F. King: "I have none of the 'Annuals' left. Could sell a few more, most likely, if I had them."

Wilson-Hood Cheyney Co.: "We have three copies on hand, and shall order in half dozen lots as needed."

W. S. Bell: "We have no 'Times Annuals' in stock."

Barker & Starbird: "We have no over stock of the 'Annuals,' and although we received three separate orders from you, we may be obliged to give you a fourth, in the near future."

McCurdy & Durham: "We have sold all but one copy, and shall probably need more shortly."

Paul Roessler & Co.: "We have not now any of the 'American Annuals of Photography and Photographic Times Almanacs' for 1892, on hand."

Buchanan, Bromley & Co.: "We have on hand 11 copies of the 'Annual.' These will go very easily. If all our goods were as sure sale as these, we would be happy indeed."

J. N. McDonald: "I have no copies of 'The Times Annual' for 1892, in paper. I have ordered a dozen copies more."

There is not a copy to be had of the Publishers at present.

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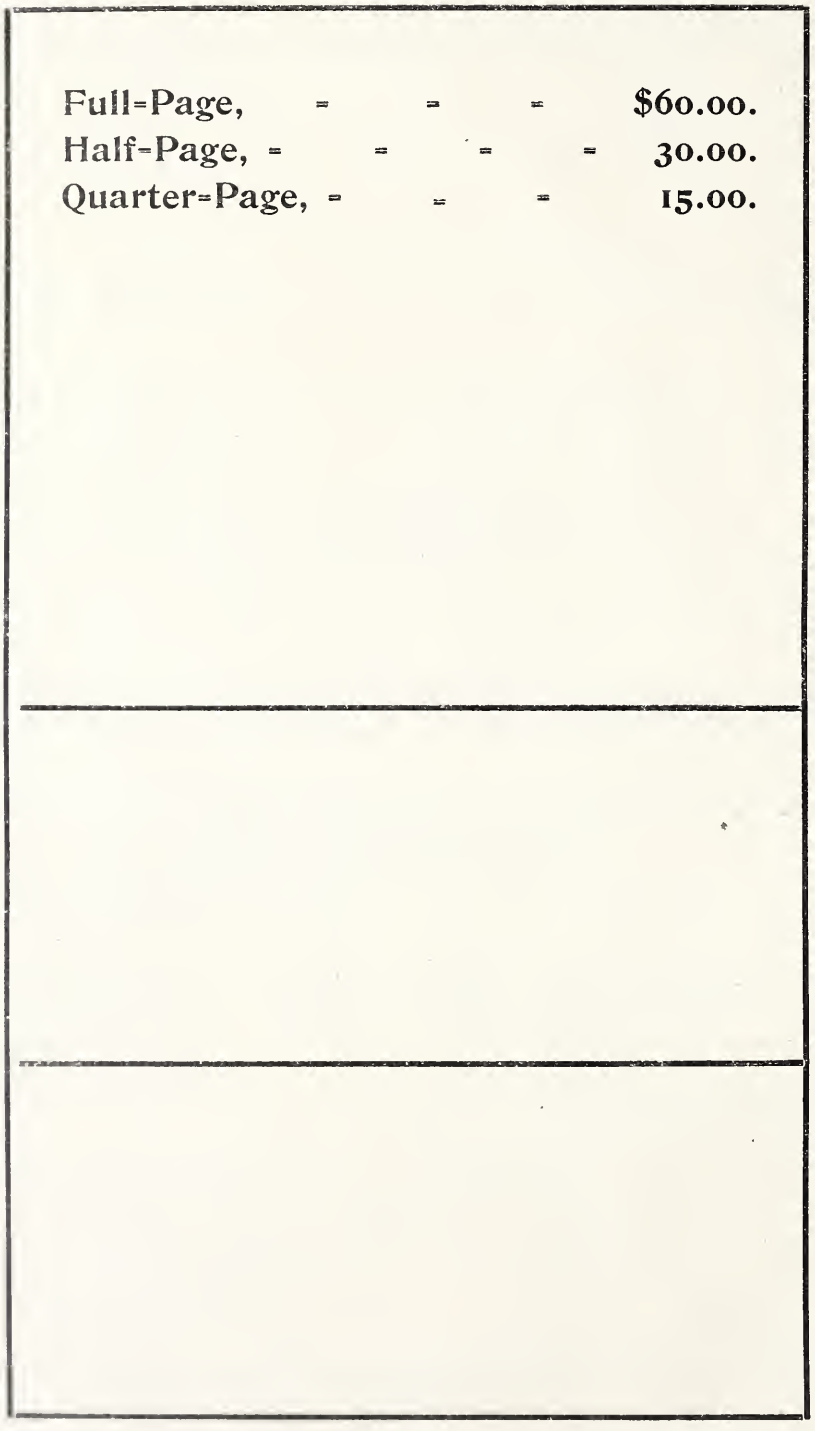
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[OVER.]



HARRY B. REID, PHOTO.

THE PHOTOGRAPHIC TIMES.

VOL. XXII. JUNE 10, 1892. No. 560.

THE FALLEN TREE.

OUR frontispiece this week is another picture of the series which was accepted at the Vienna Exhibition (1891), and received a diploma. It was made by Mr. Harry B. Reid, Secretary of the New York Camera Club. The scene lies on the Susquehanna River at York Furnace, Penn., fourteen miles south of Columbia, on a part of the river between two islands. The islands were swept by. the great floods of 1889 at the time of the Johnstown disaster, and a greater part of the timber growing on them was uprooted and carried down the river; and some piled on the islands with logs from up the river to the height of sixty to eighty feet. The tree in the view was carried from the island on the right or north of the picture. The exposure was made August 31, 1890, on a Cramer 40, 6½ x 8½; camera used was an Irving view.

THE EMULSION FOR GELATINO-SILVER CHLORIDE PLATES.

MR. A. JOSSART-GUYAUX publishes in *La Revue Photographique*, a printing-out process on plates prepared with a gelatine emulsion of silver chloride which is substantially as follows:

PREPARATION OF THE EMULSION.

1.

Silver nitrate	22.50 parts
Distilled water	100 parts
Alcohol	15 parts

2.

Strontium chloride	5 parts
Distilled water	100 parts
Alcohol	15 parts

3.

Citric acid	10 parts
Distilled water	100 parts
Alcohol	15 parts

In a stone bottle one first dissolves 50 parts of gelatine—best quality—in 500 parts of distilled water, then add successively 40 parts each of the three solutions in agitating violently, and lastly 3 or 4 four parts of aqueous ammonia. The emulsion is now heated to 50 or 60 degs. centigrade (1120 to 140 degs. Fahr.) and this done filtered through a piece of fine linen previously wetted.

It is not necessary to wash the emulsion. It can be immediately employed to coat the plates, two or three dozen at a time.

When dry they are employed to print absolutely as the albumenized and other papers prepared with silver chloride.

The manner of operating to obtain different coloration is as follows:

The proof must be printed very strongly—until the deep shadows be metalized as for the different kind of aristotype papers—which can easily be ascertained in the printing frame. This done; if one desires a warm tone, the proof is immediately fixed in a bath of sodium hyposulphite at 30 per cent of water; to obtain the tones varying from chocolate to black in passing the intermediate violet tints, we tone and fix in the bath following:

1.

Water	800 parts
Sodium hyposulphite	200 parts
Ammonium sulphocyanide	24 parts
Sat. Sol. of alum	60 parts in volume

This bath is set aside for four days, then filtered for use.

2.

Water	100 parts
Gold chloride	1 part
Ammonium chloride	1 part

For use mix 100 volumes of 1 and 10 of 2, adding 2 to 1 (not the reverse).

If the proofs have been too strongly printed, one can operate thus to lighten it. The proof is first washed in a little lighted room, when it is placed in a solution of ferrocyanide of potassium at 10 per

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cent. As soon as the desired effect is produced the print is well washed, then fixed, or toned and fixed as above explained. One should not take notice if after the washing the plate becomes pale which provenes from the insoluble silver salts, this opacity will disappear in the fixing-bath.

Six grammes (about 90 minims) of this solution suffices for plates 8½ x 10 centimetres (correspond to plates 3½ x 4½ inches).

Mr. Jossart-Guyaux resumes as follows the advantages of the process:

The plates stored in a cool and dry place keep indifinitely, so to say.

The proofs are exceedingly sharp.

The emulsion is easily prepared, no washing, no special utensils for the manipulations.

Suppression of the exposure to artificial light and of the development which, neither one nor the other, give constant results.

"My best diapositives," says he, "have been obtained from negatives whose development has been very much pushed—without veil, however. If a negative is weak, one should intensify it, better light and consequently more contrasts are thus obtained."

THE EXHIBITION OF PHOTOGRAPHS AT THE MANHATTAN CHAPTER OF THE AGASSIZ ASSOCIATION.

ON entering the rooms of this Chapter of the Agassiz Association the representative of THE TIMES was received by one of its members who, after greeting him cordially, remarked that the exhibitors were more in search of criticisms and advice than of praise. Very well! But to find fault with such a fine display of pictures, the writer may run the risk that somebody thinks what Apelles did when he said to the cobbler who, after having criticized a sandal, wanted to judge the whole picture: "*Ne, sutor, supra crepidam!*" The fact is that there is very little to find fault with.

In the front parlor the pictures which first attracted our attention were those of Messrs. Edward B. Miller and Herman Bucher, Jr. The exhibit of the former gentleman is very large—fifty pictures—among which there is not a bad one. Very fine are No. 9, "The Mall;" No. 20, an artistic winter landscape named "The Bronx;" No. 18, "To the Observatory;" No. 27, "Snow-dens," a group of children well composed and an excellent photograph. Other pictures also deserve the praise of connoiseurs.

Mr. E. B. Miller prints himself from his negatives. We think that, by certain printing dodges, he could have much improved some of the landscapes which only lack effects to be excellent. In a photographic tour one may be attracted by a view, very good as an artistic arrangement, but defective in contrast either from the lighting or the general tone of the scene possessing almost the same actinic power. The result is a negative having an uniform tonality, without color as says the painter. This may also arise from a necessary long exposure or an improper development. Whatever be the cause, such negatives can yield effective impressions by lighting certain parts, casting there a strong shadow, etc. This is done as said above by printing dodges. The most commonly employed for lighting or shadowing large spaces is to paste a sheet of transparent paper on the back of the negative, then upon it to blacken, more or less, with graphite and a stump, the parts which should be more luminous, oiling the paper where a shadow must be cast. In the foreground a deep shadow is generally quite effective to relieve the other planes, as to the delicate details there are retouched on the film, as usual.

The photographs of Mr. Herman Bucher are not less remarkable than those of Mr. Edward Miller. No. 17, "A Matter of Life and Death" is not a new subject. It has been treated by Ribera, if our memory serves us right. But unlike that celebrated painter who delineated such philosophical ideas by some terrible scene, Mr. Herman Bucher presents it to us in a new allegoric and poetical, and not the least suggestive composition. Here are some flowers, youth blooming in a bright light, but, slowly a shadow comes over them and gradually they fade in the dark, when a skull, death, appears. . . . .

The portraits of Mr. Bucher show equally the artistic taste of this amateur photographer. They are well composed, well lighted. The portrait of a lady, No. 37, is excellent, others are good also, but the gem, *le clou*, as we say in French, is No. 24, "To Your Health." A prize for portraiture has been awarded for this picture, and it is justice. The exhibit of Mr. Bucher comprises forty-three pictures.

Another large exhibit, the largest, is that of Mr. Charles J. Miller. Seventy-five pictures, among which we have remarked some excellent portraits indeed: No. 11, "Study in Posing," is an artistic composition, the draperies are specially very good. Nos. 45 and 46, "Waiting for the Breakers," and "Running from the Breakers," are instantanés of non-common perfection, no harshness. It seems that they are time-photographs. No. 53 is another

good instantané, No. 7 a group well composed and —the fact is there are but few pictures to criticise.

Mr. Chas. Miller, like most amateur photographers, makes portraits in a parlor, utilizing a window as the source of light, which offers certain difficulties for the distribution of the same on the model to avoid exaggerated contrasts; such, for example, as seen in some of the portraits in question. They are well composed, no doubt, but somewhat harsh, so far as the lighting is concerned. This we think Mr. Miller can avoid by filtering the light through a transparent screen before it reaches the model and, to still soften the high lights, by the use of a head screen disposed in a certain manner on the side of the source of light. Thus by subduing the high lights, the details, or *modelé*, in the shadows become more distinct. It is one of the exigencies of photography to avoid great oppositions of light and shade, for strong lights impress the photo-film more rapidly *in proportion* than the weak lights, that is, the half-tints in the shadows.

Mr. J. H. Loskarn, Jr., practised our art for the past five or six months and all the pictures he exhibits are generally good. No. 3, "Early in the Morning," is a landscape with excellent foliage. Nos. 16, 22 and 24 should also be especially mentioned.

Mr. Christian F. Groth's "Waiting for the Kaiser," is an instantané quite remarkable. Mr. Chas. Putnam has a good picture; No. 10, "Yachtmen at Work," by Mr. Alfred Dressler; "Low Tide," by Mr. Frederick Albers; the pictures numbered 1, 3 and 8, by Mr. Wm. T. Demarest, are noticeable for their good qualities. Mr. Anton Schroeter's "Studio of Mr. W. H. Frey," is the work of a photographer of merit.

Mr. Anton Nehrbas' pictures are generally dark; over-exposure and eikonogen as a developer account for it. This developer, good for short exposures, yields flat, weak negatives in the cases in question. Hydroquinone would have been a better developer. We advise Mr. Nehrbas to use pyro-potash and he will generally produce much better photographs. Among the pictures exhibited *g* and *m* are good.

Mr. J. H. Loskarn, Jr, is one of the best photographers of the association. No. 3 is a landscape with fine foliages. Nos. 16 and 24 are also very good photographs. Nos. 6 and 7 are pictures of excellence.

On the whole, this exhibition is one of the most remarkable we have visited during this season. The pictures are not only good from a purely photographic point of view, but show that there is among the exhibitors a great artistic taste.

The Manhattan Chapter, Agassiz Association, was organized about ten years ago. It numbers about fifty members. Its object is elevated, being to encourage investigation and study in science and art. The photographic section has a well-equipped dark-room, good apparatus, etc., and offers the facilities to do work, while charging nominal fees and dues.

The organization hold a regular meeting each month and special receptions, and excursions are arranged frequently. The headquarters are at No. 139 East 40th Street.

In the visits to the clubs of amateur photographers which we lately made, we were surprised to find that electricity was used in every room as the mode of lighting, there was no arrangement to take portraits in the evening by the same source of light. For this purpose it would however; three arc lamps placed near the ceiling in a box, with reflectors, inclined at an angle of 45 degrees toward a given place to pose the model would suffice. The light should, of course, be subdued by light-blue tissue paper stretched on the front of the box in order to render it supportable to the eye and avoid the solarization of the high lights. As to its distribution on the model, the ordinary contrivances —head screen, transparent screen, reflectors, etc.— should be employed. A circular background to opposite lights to shades and shades to lights, would be indispensable.

THE STUDIOS OF NEW YORK.

VIII.

In Tompkinsville, Staten Island, there is, not far from the ferry and facing the magnificent New York Bay, a pretty cottage with a studio in the middle of a garden arranged in a picturesque and sort of rustic way denoting that the proprietor is a man of original ideas and a lover of Dame Nature. There has lived for thirty years, in a simple and quiet manner, almost unknown among his brothers in Art, a photographer whose pictures are not only excellent as works of photography, but unsurpassed by their artistic merits. His mode of working—I refer to the photo process—is that of the New York photographers: developing with pyro-soda, toning with gold-soda and printing on extra brilliant albumen paper. "I don't like very much these photographs, moreover their permanancy is uncertain,"

says he, "but I am compelled to make them. In general the public taste has been spoiled by the glossy appearance of the proofs, their bright red, brown, purple and other inartistic colors, etc.; and it does not seem that artist photographers try to reason against this and to introduce pictures made by processes yielding durable impressions. And this, very probably, because the silver printing-out can be done by anybody after a few days' practice, being entirely mechanical and in the whole quite cheap. Now they even tone without gold! All right, the photographs will last what they might. I try to introduce among my customers small pictures in platinum. The trouble is that they don't look well on card mounts and that they are to be mounted with double margins one tinted. This is quite artistic however."

The fact is that Mr. Loeffler is not a man who delights in working by routine. He is always in search of that which can improve our art and, specially, the durability of the positives. When Lambert came to this country to introduce and sell the improved carbon process, he was, with the writer of these articles, one of the first who became enthusiastic *charboniers*. We thought that the new process yielding permanent photographs would replace the silver process which yields fading impressions. The cost of the pictures was increased, no doubt, on occount of the price of the material and, specially, by the work which requires skill, experience and time, but the price of photographs was fair then, and we could afford to deliver to our customers good pictures as durable as engravings at the same price as silver prints. But in this we were disappointed by the want of enterprise of other leading photographers.

Mr. Loeffler won the first prize, a silver medal, at the exhibition organized in 1877, by Messrs. Anthony, for carbon prints. We have seen them again, those pictures, exhibited by Mr Loeffler; they are as fresh and beautiful as ever. And what a variety of rich tones obtained by chemical means in utilizing chromic oxide as a mordant! How fine are still the transparencies. This process is no more worked in this country, except by photo-engravers. Not so in Europe, although, for publications, the Woodburytype, phototypy and the photo-engraving processes have replaced it.

Our tour in the New York Photographic studios is now at an end. There are certainly many photographers of merit whom we might have visited, but as their mode of working is similar, differing only in their manner of conceiving the artistic part, we do not think it necessary to entertain our readers any longer on this subject. We have now to consider the conclusions.

Great progress has been made since a few years in photography with gelatine plates, owing to a better understanding of the action of the developers and, therefore, of the management of the same. We seldom see now harsh white and black pictures; they are better modelled, and the tendency in some studios is to fall into the opposite defect.

Every photographer has tried the new developers, every one now uses pyrogallol-soda, with the exception of Mr. Napoleon Sarony, who develops with ferrous oxalate.

The best photographers still, and will continue to tone with gold before fixing, as being the only manner of operating insuring the greatest permanency to silver prints. Some, but very few, tone with platinous chloride. This process, introduced by Mr. Lionel Clark (plain paper), yields photographs of a great permanency.

Platinotype is occasionally used in first-class establishments and there is a general belief that in a given time it will replace silver printing. The process is quite simple, and if the prints could be made at the price of silver prints, this important progress will soon be attained. But there is a patent—how valuable, we do not know—which interferes.

The artistic side of photography, the most important, did not progress as well as that of photography proper—we speak in a general way. There is progress, most certainly. We do not see as many twisted, pretentious poses as of late, the portraits are treated in a better and more simple manner, but there is still a tendency to compose them as studies, which offends the taste of artists. New York photographers have, however, every opportunity to improve their artistic education. We have many exhibitions which can be visited and a Museum of Art where portraits painted by great artists can be studied.

As to the use of backgrounds the improvement is manifest. There is, however, some photographers who, to please their customers—we like to think it—still employ them in a—well! at random. We have seen the portrait, 11 x 14, of a cowboy, seated in a splendid parlor of the renaissance, holding a Colt revolver in his right hand, a rifle in the left, and sharply looking at some one, the photographer, most probably, ready to shoot!

SCHOOLS OF PHOTOGRAPHY.

To judge from a letter by Doctor Vogel to an esteemed contemporary, the Photographic schools of Berlin and Vienna must be in a deplorable condition, and were it not for the financial aid rendered them by their respective governments we are led to suppose that these institutions would soon cease to exist. The communication reads: "Although we have in Germany and Austria two well-attended institutions, they are by no means adapted to the requirements. They should show thousands of scholars and have not yet a hundred attendants," and later on, we are informed, the young photographers cannot attend these schools, because of their being employed in day time, and in order to draw students at all, these schools are compelled to open the class-rooms at night. It is evident that Doctor Vogel at least is not satisfied with the financial results derived from his institution. From the glowing reports we read in *Correspondenzen* and *Mitheilungen*, the uninitiated are induced to think that both of these institutions are established on as sound a basis as the universities of Berlin and Vienna. But Doctor Vogel permits us to peep into the closet hiding the skeleton, by saying *they are not adapted to the requirements*, and hence the complaints of a scarcity of students. If we inquire what people, old or young, in search of instruction, really expect from these schools we may possibly find the cause of the evil complained of.

We think Drs. Vogel and Eder have undertaken too much, and have widened the field of instruction over too extensive a region to be suitable to particular interests. The astronomer, for example, who relies upon the sensitive plate to assist in the pursuit of his science, does not care a straw about posing and lighting the subject; the process-worker, we will look at him here merely from the technical point of view, is anxious to learn how to make a gelatine cliché from a negative already in existence, and to print from it. Kunstlehre, or the history of Ismaelitic art, has no interest for him; and the young lady amateur who desires to make pretty landscape and genre pictures feels quite indifferent towards spectrum analysis or the chemistry of the carbon compounds and surely to subject a student to a straight-laced course of instruction in these auxiliary sciences of photography detracts the attention of a specialist from the particular object of his study.

The young professional photographer applies for tuition to learn the business quickly so as to make money rapidly. Essential to him is what the others do not need; kunstlehre is highly important to him, and in chemistry and physics he must have more than superficial knowledge. He cannot do without at least a fair knowledge of optics, and he should be familiar with the teachings of spectrum photography. In the pursuit of his profession he is called upon to do artistic work mainly, purely technical frequently, and occasionally will he assist in scientific researches. But before he can do all that successfully, his taste must have been educated to find the beautiful in his subjects and to understand chemical and physical actions as they occur. A photographer of these accomplishments is perhaps a beau ideal only, nevertheless are we quite certain Vogel's and Eder's institutions are perfectly competent to turn out such under favorable circumstances.

But students to reap the entire benefits offered are extremely rare; they should before entering the photographic school enjoy a collegiate education, that of a German gymnasium, and to aspire to the highest honors would probably necessitate a triennial attendance, like that prescribed by German universities. We feel inclined to think neither Vogel nor Eder have as yet had educated such a photographic paragon.

The specialist in photography is subjected to instruction neither useful nor interesting to him, and to the young professional the class-rooms are closed for want of time, no matter how anxious he may be to learn.

How favorably compares The Chautauqua School of Photography with those of Berlin and Vienna. They complain of a lack of students, we have often been oppressed by a super abundance of them. It is true we have not yet made Gothic or old Christian art a subject of instruction, spectrum photography has not yet found a place on our curiculum, and photo-mechanical processes have not been introduced, but our aim to educate practical photographers has been fully accomplished, and the productions of the majority of our students can rival those of adepts in photography, and in many cases Chautauquans have carried the highest honors in public exhibitions.

We ascribe our signal success to the method of instruction. After a course or two in either of the two practising classes the student enters the corresponding class and some have remained for years under instruction. In the practising classes the student learns manipulations and the use of chemicals and utensils. The corresponding class continues the study and builds up more and more on the practical basis already formed. Prescribed reading and continued correspondence with the instructor are essential.

After an existence of years the German and Aus-

trian schools have just cause to complain of want of success; the Chautauqua school gives only the most satisfactory reports. In our first school year we had but eight scholars, now at the close of the sixth year nearly 200 students' names are on our lists. These represents thirty-two States of the American union and several foreign countries, among them South Africa, China and India. The school is now self-supporting and does not need subsidies from any source. An enthusiastic German student once hailed the Chautauqua school with the academical salute, "*Vivat floreat crescat,*" and truly does she live, flourish and grow to the satisfaction of all her friends and patrons.

Charles Ehrmann.

QUICK SHUTTERS.

I HAVE made a great many experiments in rapid shutters for what is called instantaneous work, and the best in principle I have been able to try is one which I myself made for a special purpose, the photographing of running water. It acted on the principle of the shutter used in sun-photography, employing a slit which passes across the whole field and gives each part the benefit of all the light that comes from the subject, with practically a full opening of the lens. The action is that of the guillotine, working horizontally, but as the spring which must be used to give the motion must be powerful to get rapid motion, it must have a reflex action and resistance, not to shake the camera and confuse the image, and thus it must be balanced by a sham shutter, which is of the same weight and takes up the resistance. The opening of this sham shutter is such that it never encroaches on the field, leaving the determination of the exposure to the width of the slit in the real shutter, or to the rapidity of its movement. I used a barrel-spring, placed on the top of the apparatus, which was put in front of the lens, this spring throwing the pair of slides across the front with a balanced and simultaneous motion. For the same reason, *i.e*, the want of mechanical appliances, I had to make my variation of the exposures by a change of the effective shutter, with a variety of openings. This was clumsy and could easily be avoided. This form of shutter will give a certain amount of light on each part of the negative, with a shorter exposure of that part than can be given by any other form, as it has but a single motion, but it presents difficulties in the regulation of the aperture, not insuperable, which require perfect mechanism to overcome them. I introduced a revolving fan also, which I saw afterwards had been brought out by a French inventor, but the action of this is not efficient when high rapidity is wanted, and the practical method would be to vary the stress of the spring.

The theoretical shutter is generally believed to be that which opens from the centre and closes to the centre, and for every reason except that which I have given above, it is the best, but it has to open and shut and the time must be double that of the shutter which passes and does not return, besides which it begins with an infinitesimal opening and ends with the same, so that the opening is really only the mean of the whole exposure, *i.e.*, that of half the diameter of opening of the lens for the whole time employed, which is less than half the area of the full opening. But where the highest speed is not required, but a fraction of a second up to the 200th, possibly less, this form, which is denominated the iris, has great advantages; its definition is better than it could be if the full opening were employed, and better over the whole field than when the slit is used and the illumination is more equal. I have been recently using one of this kind made by Bausch and Lomb, which possesses more advantages than I supposed could have been combined in one shutter. One dial, fully exposed and ready to the hand, regulates the rapidity of motion from three seconds to 100th of a second; another, concentric with the first, regulates the extent of the opening of the iris diaphragm, and a little lever, on the same axis, gives either the instantaneous action, or a time exposure, terminated by a second pressure of the air bulb. The action is then automatic up to an exposure of three seconds, but how the divisions of time are regulated, is more than I can see, as there does not appear to be any clock-work involved. As a piece of mechanism it excites the admiration of all who have seen it in my hands, and I must say that it delights me, and as the product of American invention I am very proud of it. In action I do not see how it could be bettered within the limit of its speed, which is all that the rapid type of symmetricals commonly used for landscape work, will stand—you turn one dial to get your desired stop, another for your speed, and with the lever you make it a time shutter, with a quick or slow movement at will. Nothing equal to it has ever been seen in this part of the world.

W. J. Stillman.

An interesting letter just received from John Carbutt states that he has arrived safely on the other side. He used the Henry Clay Camera, while on the ocean, with great success, and made a number of "converts," so he says.

ART—ITS RELATION TO PHOTOGRAPHY.

A CELEBRATED WRITER once observed that art is knowledge made efficient by skill, while science is systemized knowledge. Webster defines it as the application of skill to the production of the beautiful by imitation or design. The object and chief end of art is to give pleasure. Thus we have art in music; a group of sounds harmoniously blended together; sweetly, softly and gracefully they mingle, giving concord, harmony and melody pleasing to the ear, soothing to the mind, agreeable to the senses. We have art in architecture; beauty of decoration and design is carried to the highest point of excellence; lines, curves, surfaces are given artistical expression, forming a branch of æsthetics which is classed with painting and sculpture.

The art of sculpture is one of the oldest that has been handed down to us. The Egyptians sculptured the human form two thousand years before the Christian era. In monuments, busts, etc., we see the artistic excellence of the productions of the ancients. The art of painting is of great antiquity, which is proved by the remains found in Egypt, and ancient writers also refer to it in their works.

Painting is an art which represents an object on a flat surface through the medium of color and lines. It conveys to our minds a *supposed* truthful representation of places or things, giving form, color, light and shade. It is a universal language capable of interpretation by the whole human race. The being who passes his existence far from the haunts of education and civilization, the ignorant and the wise, the learned and unlearned, all can read a pictorial representation. Longfellow, in his beautiful poem, describes how Hiawatha

> "In his wisdom taught the people
> All the mysteries of painting,
> All the art of picture writing
> On the smooth bark of the birch tree,
> On the white skin of the reindeer,
> On the grave posts of the village."

A well-known critic remarks that vitality in art is maintained by close reference to nature, which is a leading characteristic of the American school of painting, while the tendency of artists at present is to take advantage of the aid of science, which has discovered photography to enable them to study nature with greater earnestness and care. Here we have photography brought forward as an invaluable assistant to the American painter of the present day. This brings us to a question long discussed by photographers. Is a photographer an artist? I have on numerous occasions read articles by photographers on the subject. In nearly all of these it was claimed by the writers that photographers were artists in picture-making, and entitled to the same standing as the person who painted on canvass. To my mind there can be no comparison, and photography in an æsthetic sense must stand entirely and unreservedly apart from painting to almost as great an extent as from sculpture. The majority of photographers are not noted for their excellence in drawing, and without doubt some are color-blind, yet can make fairly artistic photographs. The painter lights his subject differently from the photographer, and while some of the former think that a scientific knowledge of perspective is a superfluity, yet a painting, though excellent in form and color, is not considered perfect unless its rules have been rigidly adhered to. In his excellent article on "Impossible Photography," Mr. H. P. Robinson points out the absurdities of the photographer attempting to imitate the painter by arranging very plain models in photographic attitudes and with photographic backgrounds, painted by canvass artists, who without doubt never dreamed of following in the footsteps of Titian or Corregio in an effort to picture a scene supposed to have occurred thousands of years ago.

The poet and the painter can call up in their imagination figures, faces and scenes, and produce their thoughts on paper and canvass. The photographer cannot do this. He can only picture the object before his lens, and in the majority of cases the result does not hold us spellbound or enraptured. Hard facts stand forth in every line. The dream is lost. The idea is not realized, the story is stripped of its romance and the picture is commonplace. The painter can call photography to his assistance without revealing the fact. The photographer cannot call painting to his without showing it in every line. The photographer must picture things as he finds them. The painter pictures them as he would like to find them. The one gives us the fact without color, the other the idea highly colored.

Photography is an asthetic art when confined to its legitimate purpose, and practised by men of artistic knowledge and skill

A photographer who possesses these requirements is an artist in his profession, as a painter is in the profession of painting. It must be remembered that out of the thousands of painters who gain their livelihood by painting few attain very high eminence in the world of art, and many of the paintings handed down from former generations

are the merest daubs, faulty in drawing, color and composition.

The photographer who can light his subject to the best advantage, compose his picture according to the rules of art, and is master of all the technical points of photography is an artist of the highest order. His pictures give pleasure, which is the end and aim of art.

B. F. McManus.

LAMENT OF THE AMATEUR PHOTOGRAPHER'S WIFE.

You prate of the joys of an amateur's life,
Of his pride in his lens and his outfit;
But, really, unless you're an amateur's wife,
You know very little about it.
'Tis pleasant to welcome a box by express
Expecting a new Easter bonnet,
And find it is chemicals—horrible mess!
With jaw-breaking labels upon it!

'Tis pleasant, when hastening to tidy a room,
To meet with continual hinder;
Be told that you must not, just now, wield the broom
Because of the prints in the window!
I can't keep a box, nor a dish, nor a pan,
John takes them for packing and "fixing;"
Oh, surely one never did see such a man
For "developing," washing and mixing.

I can't buy a book, nor a new magazine,
Nor fine statuette, nor a picture;
If there's any spare cash John lately has seen
Some new kind of poisonous mixture.
Or gold he must purchase, or hydroquinone,
And all sorts of holders and presses;
To get them he'd willingly dine on a bone
And "don't see the sense of new dresses."

I can't give the children a bath in the tub,
Of poison they're daily in danger;
Though their pinafores I most unweariedly scrub
They're ne'er fit to be seen by a stranger.
And John will forever exhibit with pride
The photos of baby he's taken,
The one when she laughed, and the one when she cried
And looked so forlorn and forsaken.

Oh, pyro and hypo, chloride and chlorate,
(There's no end to the grim combinations)
Eikenogen and sulphides—I cordially hate
Every one of the vile preparations.
I wonder, sometimes, I escape with my life,
I certainly think I'll go crazy;
You see, do you not? that an amateur's wife
Has no chance to be quiet or lazy.

Elizabeth S. Cranson.

Correspondence.

A NEW LENS.

To the Editor of THE PHOTOGRAPHIC TIMES.

Dear Sir: I just at this moment open THE TIMES of the 6th of May, with my note on the concentric lens, and hasten to correct a mistake contained in it before I am compelled to read some one else's correction in another number. It is that the angle of the new lens is 105 deg.—it is in fact scant 90 deg. on the *diameter of the circle*—which is a very different thing. I owe the blunder partly to getting mixed with the Zeiss lens which gives 108 deg, and partly from the operator of our club giving me the angle of the lens and not looking at his scale myself. He measured it and reported 105 deg., and I sent off my letter before making more complete trials. In fact, as a wide-angle it is not equal to the new Zeiss or to the Morrison wide-angle if the latter is used with a small stop, but with the large opening it is out of sight ahead of anything I have ever seen up to an angle of 80 deg. and somewhat over but not quite up to 90 deg. effective, as in the last few degrees the illumination falls off. But by bringing the two components a little closer together and sacrificing the extraordinary definition slightly, the angle may be increased.

I cannot excuse myself for the carelessness of having admitted such a large statement without carefully looking at the scale myself, but I had no doubt of the competence of my friend, and was off my guard.

But since I wrote I have had the 7 in. lens fitted with a new rotary diaphragm, by which I get with F/13 perfect definition over a moderate field with the exposure of about the fifth of a second, and fair definition with F/11 in a much shorter exposure, but which I cannot measure precisely.

I have a series of the new lens fitted with the iris diaphragm working up to F/16, the largest the Ross Company cared to risk, and with that the work is so perfect that I do not use them at a smaller opening. I enclose a print from a negative made by the 8 in. lens of the series, at F/16, which shows what its definition is, though the telegraph wires which fill the air are in parts buried by the high lights of the sky. The exposure was simply open and shut with a lens cap, as I have no mechanical shutter to fit the lens.

Yours truly,

W. J. Stillman.

ROME, May 19th.

Notes and News.

The Newark Camera Club enjoyed an outing on Decoration day, May 30th.

Mr. Wallach, of Sweet, Wallach & Co., was in New York last week.

Clifford & Son, photographers, of Muscatine, Iowa, has sold out.

John Fosite, a photographer of Buckley, Washington, recently sustained a loss of $200 worth of property by fire.

J. R. Swain, Dana, Indiana, is building a new gallery, which he expects to have ready for occupancy in a short time.

Mons. P. C. Duchochois of THE PHOTOGRAPHIC TIMES staff, is delivering a series of three lectures before the New York Camera Club.

The New York Photogravure Co. gave a grand complimentary picnic to its employees, at the Morrisania Park, Saturday afternoon and evening of June 4, 1892.

Mr. F. E. Ives is continuing to meet with success in England. See the account of his second lecture as reprinted from the *London Daily Graphic*.

The Capitol Camera Club, of Washington, has held its Annual Election of Officers with the following result: President, Charles E. Fairman; Vice-President, Rev. E. Drewitz; Secretary, Charles A. Cooper; Treasurer, C. L. Dubois.

ON CORRECTIONS OF DISTORTIONS, AND THEIR RELATION TO PERSPECTIVE IN PHOTOGRAPHY.

THE ordinary distortion known as that converging or diverging inclination of vertical lines, observable whenever a camera has been tilted upwards or downwards without the corrective use of a swing-back, and which we may distinguish from the effect of a distorting lens by its proceeding always in straight lines, whereas the error due to a lens is always developed in a curve, is now perhaps the most familiar to us of all forms of distortion, accustomed as we are to the use of rectilinear doublets. A good typical instance of its effect may be seen when a high tower has been photographed from a comparatively near stand-point, the camera being tilted, so as to get the top of the tower on the plate. In the absence of an adjusted swing-back, the sides of the tower, although perpendicular in fact, are shown as if converging; and the horizontal summit line is contracted as compared with the base line.

In this distortion the fault which strikes us most forcibly is not so much the necessary contraction of the horizontal summit line produced by the converging inclination, as that inclination itself—the representation of vertical lines, which are perpendicular *in fact*, as though they were *not* perpendicular, but leaning inwards, like a buttress. Similarly, if a rectangular picture be copied without careful adjustment to an accurate parallelism of the sensitive plate with the object, the resulting distortion of either horizontal or vertical lines gives offence to the eye. We expect a truly rectangular reproduction, and are disappointed at any departure from sensible accuracy. When, however, a convergence of *horizontal* lines is produced by pointing a camera obliquely towards a line of buildings, it does not, unless greatly exaggerated by using a lens of too short focus, offend us at all, but appears simply as a natural effect of perspective, giving a proper sense of extension and of comparative distances. Yet want of parallelism in vertical lines offends us here. Perhaps this fact is not really anomalous, though it may seem so. There may be reasons—beyond what we know or recognize—for these seeming anomalies of perception; but still the broad principle appears to stand out that we *always* expect a representation to agree with the leading facts known and present to our minds—an apparent parallelism of lines which we know to be truly vertical—an apparent rectangular shape presented as that of a picture known to be rectangular. Or, on the other hand, a horizontal convergence* of lines representing a building concerning which the fact is present to our minds that it has, with regard to us, extension and differing distances of parts, combined with an apparent parallelism of the vertical lines which we know to be vertical in fact, and therefore *actually* parallel. But the fact—agreement with which we so certainly and instinctively look for—must not only be one concerning which our knowledge is quite assured, but also a *leading* fact, and *distinctly* present to the mind; for our minds do not seem to grasp with equal pleasure or satisfaction a foreshortening in more than one dimension at a time, and that one interpreting a prominent fact—*distinctly* present to the mind. In addition, however, to all this, the cause of distortion we have been considering does invariably produce an *accompanying* error which, as cameras are usually adjusted, is always a *vertical shortening*. It is less obvious—indeed, generally unsuspected—but it is nevertheless a distinct departure from truth of form. The present writer endeavored, several years ago, to call attention to this accompanying error in an article on "Swing-Backs," &c., which appeared in the *Photographic News* of March 21, 1884. But he fears it was there too briefly described to attract attention.

It must be evident that all distortions in practical photography have clearly an artistic, as well as a scientific interest, being as false to our perceptions of nature as they are to nature itself. But especially false are they to those cultivated visual perceptions through which architecture impresses us, arousing feelings of admiration, passing sometimes into awe. For truth and harmony of proportion, and a studied symmetry of form and detail, are the very life of that art, distinguishing it by these human characteristics from the works of nature, and conveying to us, perhaps across distant ages, the individuality of the architect. And in no class of subjects do the advantages of the best photography over painting seem so marked. The admiration of artists has ever been attracted by the beautiful and interesting architecture for which Oxford is famous. They can enter fully into the spirit of its picturesque charm, and reproduce with fidelity and skill the impressions received from it upon their own minds. But, however perfectly this may present to us the painter's conception, it does not do equal justice to that of the architect. It will still remain true that photography is able far to surpass painting in the accurate rendering of detail, and in that perfectly reproduced harmony of form and proportion which alone can entirely please those whom long observation has made familiar with the *true* form and details. It is a pleasant experience to see such observers surprised into a delightedly full and satisfied recognition of those noble and graceful edifices, probably first gazed on with the fresh emotions of youth, and afterwards

* The convergence, however, must be mainly from above. If from below, a level foreground is apt be represented as a steep ascent. Too high a stand, and an insufficient use of the rising front, tend to cause this common fault, particularly with wide-angle lenses.

endeared by the happiest associations of early manhood. In these respects artists must, and do, comparatively fail. It is well known that the true *expression* of many beautiful buildings—an expression which can accompany the *true* form and detail only—has always been more or less lost or misrepresented in the renderings of artists, a very small error in the drawing of well-contrasted details often producing a marked change in that expression. Thus it is when paintings or drawings representing this architecture are compared with really large direct photographs, taken from the best positions, set off by the finest lighting, depicted by the most suitable lens, and arranged in the most carefully adjusted camera, then printed with care and artistic skill, balancing their light and shade, and unifying their general effect by a variety of means known to those who have made such means their study; and, lastly, the picture finally completed by printing in the most suitable cloud effects with thoughtful consideration—it is, I say, when thus compared, that such a photograph is seen to be the only representation which can ever fully recall and constantly satisfy the association formed during a long and loving familiarity with the original. Of course all this implies artistic production; and, as we may fairly claim, that course of operations well deserves to be called art, in which we strive, by means admitting of intelligent human direction, and colored therefore by human individuality, towards an intelligent representation of natural beauty, or a sympathetic rendering of other art-conceptions. For to do these things involves conception, perception and skill in the adaptation of photographic means to artistic ends. In the course of former remarks on photographic perspective (September, 1891, p. 618), I had occasion to point out that the one necessary condition of accurate reproduction of form, with either a rectilinear combination or a simple pinhole, was that the *planes* of the object and of its image should be accurately parallel with one another; also, that so long as this parallelism was preserved, neither a central position for our lens, nor perpendicularity of its axis to either the plane of the sensitive plate or that of the object, were conditions that affected anything beyond accuracy of optical definition.

We will now examine more closely the effects where this parallelism has been lost. Many of us may have noticed in copying, that should our lens not be pointed perpendicularly to the plane of the *object* (though truly perpendicular to that of the focusing screen), not only are parallel lines in the object represented on the screen as converging towards the end or side which is furthest from the object, but either or both dimensions in which this convergence occurs are also *shortened*, the correct length being to the reduced length as radius (or unity) is to the co-sine of the angle which the plane of the focusing screen makes with the plane of the object. If, however, *without altering* the position of either lens or object, we bring the focusing screen by lateral or horizontal adjustment of a swing-back (both adjustments, if required) to correct parallelism, we shall find that, although the lens is now pointed obliquely towards both the object and the focusing screen, not only is the convergence corrected, but the shortening *also*, and a correct rectangular form is depicted on the screen. And we may thus practically see that parallelism is indeed the one essential condition of accurate reproduction of form, although of course, perpendicularity of the lens to both planes is required for the most accurate optical definition.

But if now the camera and lens, with the swing-back so adjusted, be moved so that the axis of the lens is brought truly perpendicular to the plane of the *object*, although the deviation from parallelism becomes again the same as at first, one of its effects is *reversed*. The lines which should be parallel will again converge just as strongly as before, though it is to be noted now as being towards that end or side of the *screen* which is *nearest* the lens. Such side or sides will now, however, be *lengthened* in the image instead of being shortened, and that in precisely the same proportion as they were shortened in the first instance. We thus see that while, with the same lens and distance convergence of parallel lines is equally produced by an equal departure from parallelism of the two planes of object and image, the accompanying error of form, which is *shortening* when the lens is pointed obliquely to the object and perpendicularly to the sensitive plate, becomes a *lengthening* when it is perpendicular to the object and oblique towards the plate. And we may also see how it is that the apparent lengthening of a high tower or spire on the focusing screen, when we adjust the swing-back after tilting our camera, is not really a distortion, but is a correction of that *stunting* first produced by the tilting before the swing-back was adjusted. The lens being now equally oblique towards both object and screen, the two plans are made parallel, the lengthening corrects the shortening, and a true rendering is the result. Some might prefer to *demonstrate* all this geometrically, but I think it generally happens that those who most need to be informed or reminded of the facts are precisely those who least appreciate a formal demonstration.

We are now able to deal with the question asked on February 25th at the meeting of the London and Provincial Photographic Society. For as we can see that the original distorted negative was shortened by tilting, at the same time that the lines were made improperly to converge, and that the copy would be shortened *still further*—the error doubled indeed at the very least—if the lens were pointed obliquely to the object and perpendicularly to the plate, while it would be *lengthened* —and so far corrected—by placing the lens perpendicular to the object, while pointing it obliquely towards the plate; also that *either* position might be made to correct the convergence; it is evident that it ought *always* to be perpendicular to the object and oblique towards the plate. The form of the question asked implied, therefore, a fallacy. Clearly the negative to be copied should never be inclined *at all*, but always placed perfectly *upright*. It is the sensitive plate which should be inclined, and, to perfectly correct the shortening, this inclination must, too, be exactly equal to the original inclination of the tilted camera, for this error is purely a matter of *angle of inclination*, and quite independent of lens or focal distance.

But we wish at the same time to correct the *convergence*, and this does depend on those conditions. It proceeds from want of symmetry in the *ratios* of distance between different parts of the odject and their corresponding parts in the image; and these ratios vary with every variation of the angle embraced. The shorter the focus of the copying lens the nearer it must be placed to the object. Therefore the larger becomes that angle, and the

more effective the correction produced by a given obliquity of the lens to the plate; and this obliquity should be attained by so adjusting the *swing-back*, as that the top of some tower to which the lines in the original negative converged, may now be brought furthest from the lens, and so caused to diverge again. To find the proper lens, we note that the angle of inclination must be equal to that of the original tilting in order to correct the shortening. Therefore the distance from lens to plate must, in copying to same size, be equal to the original distance; so that the required focus of lens is exactly half the focal length of the original one, that the double length for conjugate focus may bring it to equality. For enlarging or reducing, the same principle applies. To ensure a perfect correction the conjugate focus used should bear the same proportion to the dimensions of the plate as the original focus did in the original negative. If such a rectilinear lens be not available, a pinhole might suffice. But though a very small stop is always proper, a rectilinear lens is preferable, as near as may be to the required focal length. This completes the correction when the original negative has been taken with a rectilinear lens, or with a pinhole. But it may have been taken with a *distorting* lens—probably, we will assume, a lens out of a wide angle combination—and have suffered distortion from the lens *in addition* to the other two errors. To correct distortion due to the lens requires an equal and opposite bending of all the distorted pencils of rays. And a perfect correction requires the *inversion* of a single lens of the *same construction* as that originally used. For distortion may be viewed as resulting from the refraction of the *axes* of all the pencils which converging from various parts of the field of view, meet at the stop, and then diverge again, passing through the lens, and being refracted by it like the rays of one pencil of a highly divergent form. Their divergence being slightly diminished as they pass through by this refraction, they go, on slightly bent paths, to their corresponding points in the image, which thus becomes distorted. Now the *aberration* of such a pencil, so incident, is greater with a plano-convex lens than with a deep meniscus, and the distorting effect would therefore be somewhat greater at the margins. We will, however, suppose both lenses to be of the same kind. We must first place our copying lens the *other way*. Probably the original negative was taken with the stop in front of the lens, causing barrel-shaped distortion. By placing it now with the stop behind it, we obtain a corrective cushion-shaped distortion. To use the original lens and turn it the other way would not give sufficient correction, because, as copying calls for a proximity requiring a doubled conjugate focal length, the resulting angle embraced would be only half of the original angle, and pencils passing through the lens at only half the original distance from its centre would not be bent sufficiently, the original bending having been much greater, because nearer the margin of the lens. On the other hand, if we took a lens of only half the focus, so that, as in the other corrections, its conjugate focus would have the same length as the original focus of the original lens, the pencils, though passing through it at the original distance, would be *more* bent, because the lens would be twice as powerful. For the actual prismatic bending of any ray passing at a given distance from the centre is quite independent of variations of conjugate focus, which depend on distance from the object, while the bending depends strictly on the prismatic angle of the surfaces at any particular point, along with the refractive index of the material. And the distorting effect of a lens is entirely produced by that prismatic bending, while the distortion of convergence by tilting depends only on a ratio of distances from the lens and from the object respectively, and the distortion of shortening only on a relation of angles of inclination. As a further complication, the ratios of distances from the centre at which any given pencil was distorted by passing through the lens originally, and then again for correction in copying: depends not exactly on the distances of the single *lens* from the plate, but on those of the *stop*. And its varying position, sometimes before the lens and sometimes behind it, adds another factor to the elements required for an exact calculation. The required focal length is certainly, however, an intermediate one between the original length and half that length. It cannot easily be exactly found or simply stated, and, indeed, it would seem that, should all three errors co-exist, they cannot all be perfectly corrected at one operation, though a good approximation might doubtless be attained by a compromise.

(*To be continued.*)

Photographic Societies.

THE PHOTOGRAPHIC SOCIETY OF PHILADELPHIA.

A STATED meeting of the Society was held Wednesday evening, May 1st, the President, Mr. Joseph H. Burroughs, in the chair.

The Board of Directors reported the election of several active members.

After the reading of the minutes and the conclusion of the regular routine business, Julius F. Sachse, Esq., read a paper upon "The Chronological Portraiture of General George Washington." In connection with this subject the lecturer exhibited a series of thirty-six portraits of the illustrious subject in platinum, black and sepia, arranged in chronological order, and including every known authentic portrait from life, from Peale's first study at Mt. Vernon in 1772 to that of St. Memin in Philadelphia in 1798, the last ever made from life.

Included in the collection were photographic copies of the mask taken of Washington's face by the celebrated artist, Hondon. Hondon came to this country for the purpose of modelling a statue of Washington, which was to be placed in the Capitol of Virginia, pursuant to a resolution of the General Assembly in June, 1784.

He spent two weeks at Mount Vernon in making sketches and careful measurements of Washington's person, and on October 13th of that year he made, in plaster, a mask of the face, from which a cast was made and the well-known bust modelled.

The original life mask remained at Mount Vernon, and upon the occasion of the removal of the general's body to the present sarcophagus in 1832, it was loaded to Struthers, the Philadelphia marble mason, who made a plaster cast from the mask.

This was presented to the Historical Society of Pennsylvania, and from the cast Mr. Sachse made the three photographic studies which give a clearer conception of

the true lineaments of the illustrious original than any other portrait in existence.

The portraits were arranged against the wall in such a manner that the changes wrought by the cares of State and increasing age could be clearly traced, the whole offering an opportunity for a comparative study of Washington portraiture never before presented.

Upon the conclusion of the address it was resolved, upon motion of Mr. Hudson S. Chapman, that a vote of thanks be extended to Mr. J. F. Sachse for his interesting and valuable paper read before the society this evening.

Mr. A. E. Maris exhibited a Hetherington magazine hand camera, and explained the mechanism and practical manipulation.

Mr. John Carbutt followed with a "Genie" hand camera. A number of specimen prints made by this camera were also shown.

A collection of lantern slides, made by members of the Waterbury Photographic Society, were to have been shown, as announced, at this meeting, but as they failed to materialize, a number of excellent Mexican views by Mr. Wm. H. Rau were substituted.

Adjourned.

The Editorial Table.

Fortschritte in der Photographie. Von J. M. Eder und E. Valenta. An abstract of "Jahrbuch der Chemie," by Richard Meyer. H. Bechhold, Frankfort, a/M.

A summary of the improvements and novelties in photography, apparently collected from the daily literature of the last two years; a very useful compendium.

Mr. E. G. Newell, of Boston, has sent us several very pretty 4 x 5's, made with a hand camera. They reflect much credit upon the operator.

The frontispiece of the *Review of Reviews* for June is the most interesting picture of Mr. Blaine that has been published in a long while. It is from his very latest photograph, made by a distinguished German diplomatist at Washington, who happens to be an ardent amateur photographer. It represents Mr. Blaine sitting on his porch at Bar Harbor, and was secured last fail. In connection with a very readable article entitled "A Glance at Mr. Blaine's Commercial Policy," there is also a fine, spirited drawing of Mr. Blaine by the artist Garibayédoff, besides excellent half-tone portraits of Mr. John W. Foster and Mr. William E. Curtis, both of the Department of State, and both peculiarly identified with Mr. Blaine's South-American and reciprocity policies. This article on Mr. Blaine's policy is attributed to "a supporter of the Pan-American idea," and it would seem to bear some of the marks of William E. Curtis' facile pen. It is a well-informed, straight-forward statement, not entering into elaborate details.

Record of Photographic Patents.

575,919. Photographic camera. Robert de Barrie, New York, N. Y.

476,041. Photographic printing frame. Frank A. Daly, Lowell, Mass.

FOCUS SHORT.

Focus short have women's eyes,
He who knows it, he is wise;
Too far off she will have not you,
For another she'll forsake you;
Angle-width and focal ratio,
Not a bit will they avail you
If you come not close to woo her,
Vainly will your lense pursue her;
He who knows it, he is wise,
Focus short have women's eyes.

Adelaide Skeel.

Queries and Answers.

272 M. N. HALE.—Can Bradfisch matt surface paper be toned and fixed in the combined bath?

272 *Answer.*—It can. The bath described on page 87, *American Annual of Photography* for 1892, does very well, but must be diluted with from two to three volumes of water.

273 QUINTUS.—Under-exposed plates developed with para-amidophenol (TIMES formula) and exposed to its action for a very long time showed a slight gray fog. How can that be prevented?

273 *Answer.*—By adding a small amount of bromide of potassium solution to the developer.

274 STRANGER has shown us a large number of negatives made upon choice American plates, with a first-class objective of English make, stopped down to F/32, but the pictures are devoid of precision and sharpness. "What is the matter with them?" he asks.

274 *Answer.*—Enormously out of focus. With your lens stop F/22 a perfectly sharp 5 x 8 picture may be had, provided focusing has been done correctly.

275 B. WILLIAMS complains of his para-amidophonel developer (PHOTOGRAPHIC TIMES formula) turning brown before the sulphite of soda is added.

275 *Answer.*—First dissolve the para. in warm water, then the sulphite, and allow to cool. Finally introduce into the solution the carbonate of potassium. If the solution is made in this order, we guarantee it to be clear as water, or but imperceptibly tinged.

276 P. M.—(1) Will you please inform me how platinotype paper is made and handled? (2) What kind of paper is used for the process? (3) How far must printing be carried, in comparison with that of Omego or aristo paper? (4) What is the price of platinum?

276 *Answer.*—(1) The article on "Platinotype Printing," page 276, of "Hardwick's Photographic Chemistry," ninth edition, Scovill & Adams Co., publishers, will give detailed information, or see Mr. W. Jerome Harrison's articles on the same subject, PHOTOGRAPHIC TIMES, Vol. XX., pages 162—174, where both the printing-out and the process by development are described. (2) Ordinary plain Saxe paper. (3) Print till the shadow portions of the picture are fairly well out. (4) Bichloride of platinum is quoted at $1.10 per drachm, and potassium platinum chloride at $2.00, subject to fluctuation. We advise our correspondent to use Willis & Clements's paper, instead of making attempts to prepare it himself.

THE PHOTOGRAPHIC TIMES.

AN ILLUSTRATED WEEKLY JOURNAL DEVOTED TO THE ART, SCIENCE AND ADVANCEMENT OF PHOTOGRAPHY.

Issued every Friday.

W. I. LINCOLN ADAMS, Editor.

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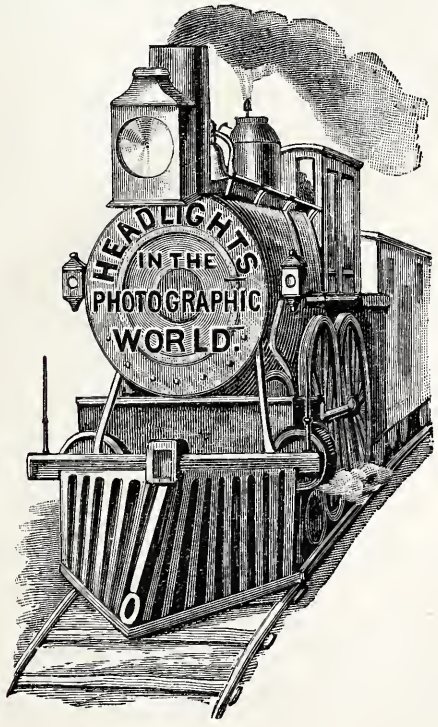
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THE PHOTOGRAPHIC TIMES PUBLISHING ASSOCIATION,
423 Broome Street, New York.



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THE SCOVILL & ADAMS CO., PUBLISHERS,
423 Broome St., New York, U.S.A.

Commercial Intelligence.

AN OPEN LETTER.

AMERICAN MUSEUM OF NATURAL HISTORY,
Central Park (77th St. and 7th Ave.),
NEW YORK CITY, May 26, 1892.

DEAR MR. FLAMANG:—I can assure you I was surprised as well as pleased with your new style 4 x 5 Hand Camera. It is a perfect cherub. It was a long time coming, but when it came—Oh my!! The excellence of its workmanship recompensate fully for the delay in receiving it. I hope to do some excellent work with it this summer, and when using it I will ever bear in mind its skilful and artistic maker. Yours very truly,

L. C. LAUDY.

Over 90 advertisers have already engaged space in "The American Annual of Photography and Photographic Times Almanac" for 1893, many of them taking several pages.

The American Annual of Photography for 1893 will be the greatest issue of a photographic publication ever made in any country. Already over 30 full-page pictures of the highest order of merit have been secured.

The Rudell Camera is the latest candidate for favor. It is a magazine camera, carrying 12 4 x 5 plates, very compact, and is simplicity itself in operation.

Examine our advertising pages! New announcements are made every week, which are of value to all interested in photography.

The Illinois Dry Plate Co., of Chicago, recently organized by Lewis M. Hintz, Richard L. Boyd, and Charles W. Ledbentritt, with a capital of $25,000, is reported to be doing an excellent business, not only in the West, but also throughout the Eastern States.

The Perfection Trimming Board, manufactured by Lane & Newcomb, of Boston, is a convenient apparatus for the trimming of paper prints.

To denote the different dimensions pictures are to be cut to, a supporting board is furnished with accurately drawn lines; by laying upon that a universal trimming glass with straight corners and by means of Robinson's trimmer or an ordinary sharp penknife, the work is done accurately and without loss of time.

The No. 2 size, embracing all popular picture shapes from the petite up to the 5 x 8, costs but $1.25, and can be had at all photographic houses.

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3⅞x5½.....	0 25	2 00	10x12.....	1 25	....
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Business Notices.

FOR SALE.—A new 4¼ x 6½ Mogey Rapid Scenograph Lens; an excellent lens for landscapes, instantaneous views and groups. Regular price $20; will sell for $15 cash. Address "SCENOGRAPH," Care THE PHOTOGRAPHIC TIMES Office.

RAPID RECTILINEAR LENSES AT COST.—4 x 5, $5; 5x7, $12; 5x8, $7; 6½x8½, $8; 8x10, $12; 10x12, $18; 11x14, $24. Write for price list. W. P. BUCHANAN, Importer, Philadelphia.

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FOR SALE.—An Albion Outfit, 8½ x 6½, with Roll-Holder and Lenses; a 5 x 7 Outfit; a Beck Hand Camera Stereo-Camera, and several Lenses. Send for list to E. EDWARDS, 137 W. 23d Street.

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MR. C. M. BROCKWAY.

Dear Sir:—I am glad to know you. It is very satisfactory to meet one who looks after the best interests of his customers as thoroughly as you do.

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AMATEURS FITTING OUT FOR THE SUMMER will do well to examine the lists of the great variety of excellent goods supplied through my agency. Mail orders promptly filled. Address C. M. BROCKWAY, 33 Worth St., New York.

THE UNDERSIGNED has a few 6x5 Dallmeyer Rapid Rectilinear Lenses which he will sell for 20 per cent. from list prices. These lenses are a late importation and are all warranted. Address "TOURIST," care The Scovill & Adams Co.

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LANGILL. 10 East 14th Street, makes all kinds of outdoor negatives. Portrait photographers will do well to consult him when such is required. First prize for Architectural photographs, P. A. of A.

WANTED.—No. 416, September 6, 1889, issue of THE PHOTOGRAPHIC TIMES. Will pay fifty cents for this copy if in good condition. A. L. PHILLIPS, Jamestown, N. Y.

LANTERN-SLIDES AND HOW TO MAKE THEM, by A. R. DRESSER.—A new book, very complete and thoroughly practical. Only 25 cents. Sent postpaid on receipt of price by THE SCOVILL & ADAMS CO.

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Orr's Circle of the Sciences, Vol. VII. (contains "The Photographic Art," by James Martin, 204 pp.). London, R. Griffin & Co., 1860. Cloth, 12mo, pp. 574	50
The Practice of Photography, by Robert Hunt. London, R. Griffin & Co., 1857. Limp cloth, pp. 126.	25
History of Photography, Tissandier, translated by Thomson. London, Sampson Low & Co., 1876. Cloth, 322 pp. (binding stained)	25
The Carbon Process. Drummond, New York, 1868. pp. 113, paper	10
Photo-micrographs and How to Make Them. Sternberg, Boston, 1883 (pub. at $3.50; good copy)	1 00
American Annual Index, 1891.	05
Philadelphia Photographer, Vol. I.	1 00
" " " II.	1 00

Odd Numbers and Volumes of Photographic Journals.

Seely's American Journal of Photography, Vol. VI., Nos. 1–19 (July, 1863, to April, 1864).

Humphrey's Journal, Vol. XV., 1863, Nos. 10, 15, 16, 20, 21, 22, 23, 24.

Photographische Monatshefte, Nos. 7–19 (December, 1862, to December, 1863).

The Photographic Times, Vols. III., VI., IX., XI. and XIV. Bound in red cloth, $1 each; regular price, $3.

American Journal of Photography (McCollin), Vol. V., No. 2; Vol. XI. (1890), complete, except Nos. 1 and 4. Vol. XII., except January, February and June.

Bulletin de la Société Française de Photographie. 2d series. Vol. VII., Nos. 1–6.

Anthony's Bulletin, Vol. XIX. (1888), complete, Nos. 1–24.

The Practical Photographer (English), Vols. I. and II. (except No. 18), 1890, 1891.

A few *very* odd numbers of Photographic Notes, Daguerreian Journal, Photographic and Fine Art Journal, Magic Lantern Journal, Photographic Herald, etc.

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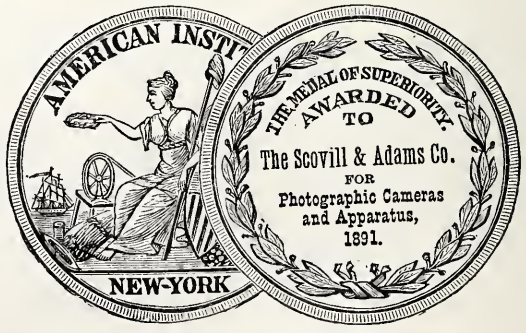
Para-amidophenol (pure)	100 grains
Sodium sulphite (crystals)	3 ounces
Potassium carbonate	1½ ounces
Water	32 ounces

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CARBUTT'S ORTHOCHROMATIC
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MONON BLOCK,
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JOHN CARBUTT, ESQ.,
WAYNE JUNCTION, PHILADELPHIA.

MY DEAR SIR:—I have just returned from a long trip to the South, visiting the principal points of interest in Florida, and taking a run to Cuba. I took with me your **ORTHOCHROMATIC FILMS,** and had most wonderful success in getting views of noted spots. To say I am delighted but half expresses it. My trip took a month; making most of the journey in a private car I was enabled to rush round from spot to spot in a way which would not have been convenient under other circumstances, and, indeed, at the time being I hardly realized what I was doing, but now I am home making prints at spare moments; I am enjoying the trip over again, rendered possible by the camera.

Very truly, JAMES BARKER.

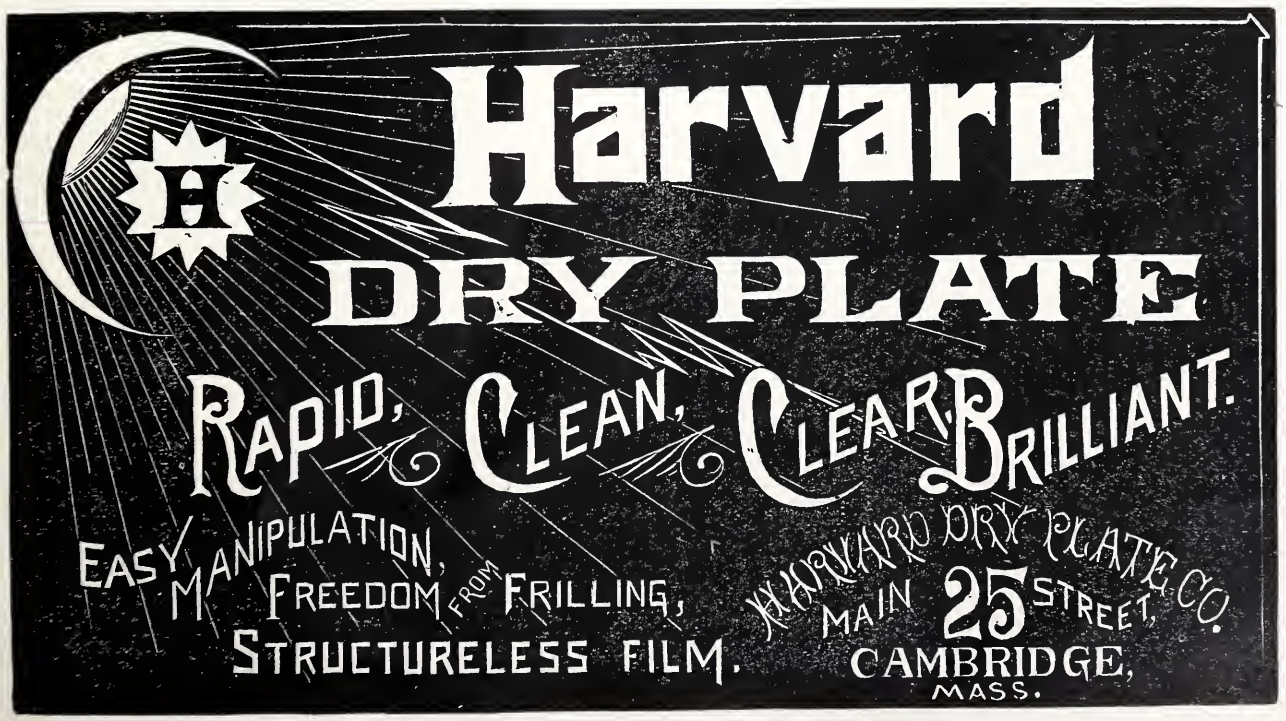
All contemplating a summer tour should place their orders with dealers early, to avoid the season's rush. Carbutt's Dry Plates and Flexible Films are to be obtained from all dealers in photo materials. Send to factory for reduced Price List and list of brands.

Manufactured by JOHN CARBUTT,

(Pioneer Manufacturer of *Gelatino-Bromide* and *Orthochromatic Plates* in America.)

KEYSTONE DRY PLATE AND FILM WORKS.

WAYNE JUNCTION,
PHILADELPHIA.



A full supply kept in stock by

THE SCOVILL & ADAMS COMPANY.

OLD ESTABLISHED

DEPOT and STOCK HOUSE,

PHOTOGRAPHIC MATERIALS AND SUPPLIES

OF ALL KINDS FOR

Professional and Amateur Photographers.

PROMPT ATTENTION GIVEN ALL ORDERS.

LOWEST PRICES, BEST GOODS.

Cameras, Amateur Outfits, Dry-Plates, Card Stock and Chemicals

☞ Dark-room for use of customers.

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Opp. Union Depot Arcade, 544 Broadway, Albany, N. Y.

CATALOGUE ON APPLICATION.



MENTION PHOTO. TIMES.

BAUSCH & LOMB OPTICAL CO.,

Manufacturers of the Popular American Standard

RAPID UNIVERSAL LENSES,

for Group work in Studios and all outdoor work, and

ALVAN G. CLARK LENSES,

on both of which there has been a decided reduction in prices. The New and Wonderful

ZEISS-ANASTIGMAT LENSES,

of which we are the Sole Manufacturers. In three Series, for Studio, Architecture, Landscape and Copying.

DIAPHRAGM SHUTTER,

which stands without rival.

ROCHESTER, N. Y., P. O. Drawer 1033. NEW YORK CITY, P. O. Box 432.

Send for NEW CATALOGUE, Just out.

Edwards's Special
Transparency Plates.

For LANTERN SLIDES, Window Transparencies, and Reproductions in Black-and-White.

These Plates make the most perfect Lantern Slides, either by contact printing by artificial light or by means of the camera from larger or smaller negatives and give, at will, either engraving black or rich warm purple tones; they are also specially suitable for reproductions of line subjects for photo-lithography, when used for this purpose with our improved Pyro Transparency Developer, they give any desired density with perfectly bare glass in the high lights.

Price, 3¼x3¼ (English Lantern Size), 75 cts. per doz.

Edwards's Special
Pyro Transparency Developer.

For Lantern Slides and Transparencies.

By means of this new Developer the most perfect Transparencies can be obtained on suitable Dry Plates with the greatest facility. It is the only Developer yet discovered which will produce (on Rapid Gelatine Plates) Lantern Slides of the highest class with RICH WARM TONES and perfectly clear glass in the highest lights.

Price, Two 8-oz. Bottles in Case, $1.50.

B. J. EDWARDS & CO., Manufacturers.

For Sale by THE SCOVILL & ADAMS CO.

CHAS. COOPER & CO.,

194 WORTH STREET,

NEW YORK.

MANUFACTURING

CHEMISTS

AND

REFINERS

OF

PHOTO WASTE,

WORKS AT

NEWARK, N. J.

ESTABLISHED 1865.

JNO. G. HOOD, CHAIRMAN. WM. D. H. WILSON, TREASURER. JOS. P. CHEYNEY, SECRETARY

WILSON-HOOD-CHEYNEY COMP'Y,

(LIMITED.)

Photographic Supplies,

AND THE

ROSS LENS.

Full Assortment of White's Posing and Lighting Specialties.

∴ No. 910 Arch Street, ∴

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TRY IT!!!

Have you tried the French Satin Junior Blue Print Paper? It has the unusual quality in blue paper for reproducing all there is in the negative. By a peculiar feature in its manufacture, it possesses qualities entirely new to blue print papers, and gives prints equal in richness and depth to silver prints.

The paper keeps perfectly fresh for months, and is worked the same as ordinary blue print paper.

The following is the price list:

3¼ x 4¼	per package of 25 sheets		$0 16
4 x 5	"	"	20
4¼ x 6½	"	"	30
5 x 7	"	"	35
5 x 8	"	"	40
6½ x 8½	"	"	56
8 x 10	"	"	68

A sample package of 25 sheets will be sent, by mail, postpaid, on receipt of price.

THE SCOVILL & ADAMS CO.

You want a New Camera Stand?



New England Agents for American Optical Co.'s Apparatus. Best in the world. Send for Price List. : : : :

WHY NOT GET THE BEST?

We claim that **The Semi-Centennial Camera Stand**

BECAUSE— **IS THE BEST.**

It is simple in construction and will not get out of order.

It will enable you to get your Camera within 13 inches of the floor, or as high as you wish from the floor.

It is fitted with turning casters, with rubber wheels. Strong, Rigid, Easy in Operation, and Ornamental in Appearance.

It is the invention of a practical photographer and is perfected in its details. WARRANTED PERFECT.

FOR SALE BY ALL DEALERS.

PRICE, Boxed, $25.00.

NEW ORTHO-PANACTINIC LENS.
H. R. & CO.'S ALBUMEN PAPER.

HORGAN, ROBEY & CO., Sole Agents,

34 Bromfield Street, BOSTON, MASS.

MORRISON WIDE-ANGLE VIEW LENSES.



These lenses are absolutely rectilinear; they embrace an angle of 100 degrees, and are the most rapid *wide-angle* lenses made.

No. of Lens.	Diameter of Lens.	Size of Plate.	Equivalent Focus.	Price.	
0	1 inch	3¼x4¼ inch	2½ inch	each, $20.00	
2	1 "	4 x 5 "	3½ "	25.00	
3	1 "	4¼x 6½ "	4½ "	25.00	These 5 sizes wi
4	1 "	5 x 8 "	5½ "	25.00	fit into 1 flange.
5	1 "	6½x 8½ "	6½ "	25.00	
6	1 "	8 x10 "	8 "	30.00	
7	1¼ "	11x14 "	10½ "	40.00	These 2 sizes will
8	1¼ "	14x17 "	14 "	50.00	fit into 1 flange.
9	1¼ "	17x20 "	17 "	60.00	These 3 sizes will
10	1¼ "	20x24 "	22 "	80.00	fit into 1 flange.
11	1¼ "	25x30 "	28 "	100.00	

☞ Nos. 1 to 6 are all made in matched pairs for stereoscopic work. The shorter-focused lenses are especially adapted for street and other views in confined situations. For general purposes, a pair of No. 5 lenses will be found most useful.

FOR SALE BY ALL DEALERS.

A. M. Collins
Manufacturing Company

would call attention to Dealers in Photographic Supplies to their superior facilities for the manufacture and distribution of Photographic Cards, claiming that they have always in stock, or are prepared to make promptly to order, a greater variety and much larger quantity of Cards of superior quality than any other establishment in this or, perhaps, any other country.

Warehouse, No. 527 Arch Street,
Philadelphia.



Undoubtedly the BEST!

BP

Perfected Bradfisch Aristotype Paper.

A PERFECT SUBSTITUTE FOR ALBUMEN PAPER.

THIS PAPER prints with negatives of *ordinary* density, and gives *rich* and *brilliant* results, with clear and prominent whites.

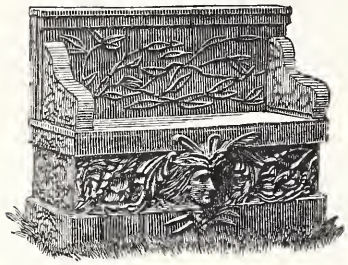
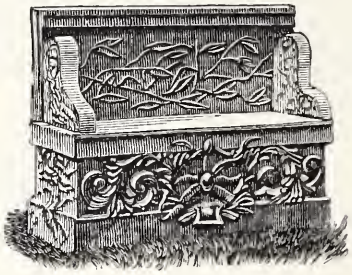
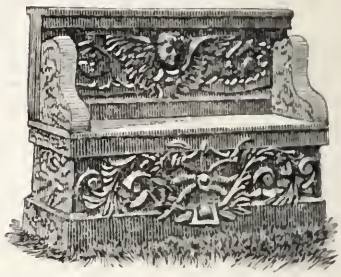
It does *not* stick, nor does the surface of the print rub off.

THE 

is recommended for use with Aristotype Paper.
It works perfectly and is always clear.

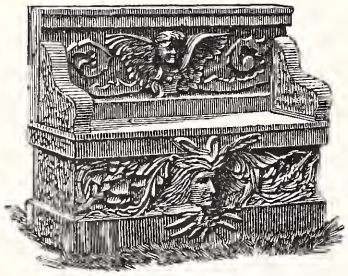
For sale by all dealers in photographic materials, and by
THE SCOVILL & ADAMS CO.

SOMETHING NEW.

The Eldorado

WALL and BENCH COMBINATION.



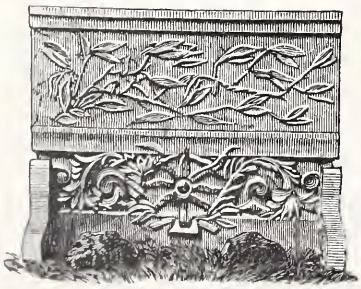
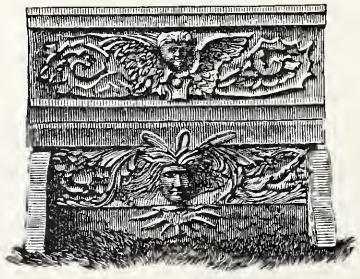
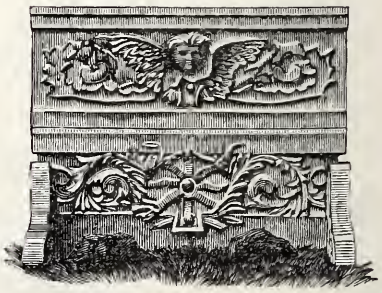
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Makes Eight (8) different Combinations.

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PRICE, - - - - $20.



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THE SCOVILL & ADAMS COMPANY,

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The proper thing

In Photographs is the **ARISTOTYPE**

The proper thing

For making Aristotypes is the

ALPHA ARISTOTYPE PAPER

Send **30** cents for a sample dozen.
$1.70 per gross Cabinet size.

The proper thing

To protect Aristotype Prints are the

CABINET PHOTO COVERS

$2.00 per thousand.

Thos. H. McCollin & Co.

PHOTO SUPPLIES OF ALL KINDS,

1030 Arch Street, **Philadelphia.**

Felt Backgrounds.

The Scovill & Adams' Plain Felt Background, recently introduced, is a great boon to all Photographers, both Professional and Amateur.

It is made of strong, thick and even stock, and is of an agreeable neutral drab color. It is especially suitable for vignetting. The texture of the cloth absorbs instead of reflecting light, and thus produces soft effects, and agreeable depth in print. The liability of defacement by water stains is obviated.

The prices of these grounds are as follows:

4 x 6 feet	$2.50
5 x 6 "	2.75
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6 x 8 "	4.00

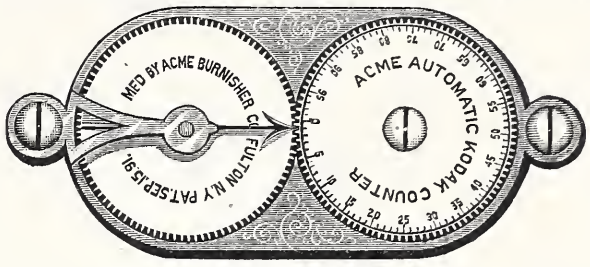
These sizes may be sent by mail on receipt of 35c. extra.

For Sale by all Dealers in Photographic Goods,
OR BY

The Scovill & Adams Co.

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ACME
AUTOMATIC KODAK COUNTER.



(Patented Sept. 15, 1891.)

SIMPLE. **DURABLE.**

ANY ONE CAN ATTACH THEM IN A MOMENT.
ONLY A MOMENT REQUIRED.
WORKS PERFECTLY
REGISTERS AUTOMATICALLY
ALL EXPOSURES MADE.
TELLS EXPOSURES REMAINING ON ROLL.
GUARANTEED IN EVERY PARTICULAR.

PRICE LIST:

No. 1—For Regular Kodaks	$2 00
No. 2—For Junior Kodaks	2 00

ACME BURNISHER CO.,
FULTON, N. Y.

"The Developer of the Future."

S. P. C.
Para-Amidophenol Developer

IN ONE SOLUTION.

An eight (8) ounce bottle containing developer sufficient for developing 100 5 x 8 negatives.

PRICE, 50 CENTS.

For sale by all dealers in Photographic Materials
AND BY
THE SCOVILL & ADAMS CO.

The Rudell Camera,

An Entirely New Magazine Camera,

Carrying 12 4 x 5 Glass Plates.

Most Simple in Action. Never Misses.

Size, only 10¼ x 6 x 6¾ inches.

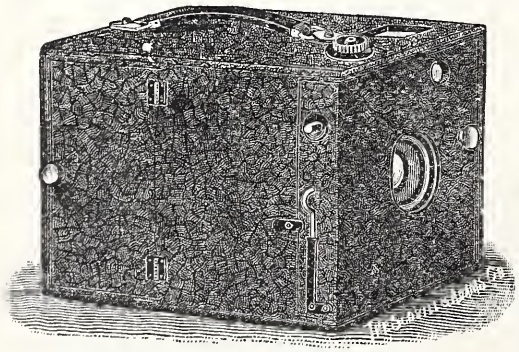
Fitted with a most ingenious Shutter, by which the plate is never exposed except during action.

AN EXCELLENT "DOUBLE COMBINATION" LENS.

Price, only $30.00.

FOR SALE BY ALL DEALERS IN PHOTOGRAPHIC MATERIALS.

THE TRIAD CAMERAS.



When a discovery in photography is announced, it is claimed that the new article will displace everything then in use. These claims are seldom justified. There is generally found a place for the new article, if it has any value, and for the old as well.

For commercial purposes, for instance, such as the reproduction of photographs for illustration, it has been demonstrated that collodion "wet" plates are better than dry plates. For the use of the amateur, on the other hand, dry plates are much better than wet plates. Though many new supports have been tried, the sale of glass dry plates is larger now than ever before. Where only a few pictures are to be made on one day's outing it is likely that the experienced photographer will always use dry plates or cut films.

If he is going away for a summer vacation, or for a trip abroad, and expecting to to make a large number of pictures, he will procure a roll-holder loaded with continuous films. This will save him the bother of developing while he is away from home, and of changing plates; but he cannot well know what results he has secured until he has exposed the entire roll and has had it developed

For those who want to use celluloid instead of glass plates, and are not willing to trust to good luck in the exposure of the complete roll of film, we offer with the "TRIAD" camera a *double* film holder which is very light. If the amateur carries six of these holders (loaded with twelve films) he is well supplied for one day · that is, if he is prudent and aims to get only really good pictures.. At night, either in a photographic studio or in his own hotel room, the exposed films may be put away into safe receptacles, and another lot of unexposed films substituted for them.

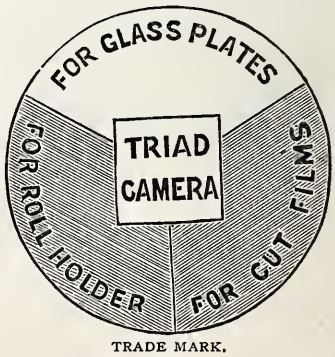
The Triad Camera is fitted with the latest improved Roll-Holder for continuous films, two double holders for glass plates, or two double film holders, if the latter are preferred.

This Camera is fitted with an Instantaneous Rapid Group Lens with easily interchangeable diaphragms —the most satisfactory detective camera lens ever made. It has a finder so constructed that the image is the same as that on the ground glass, though of course it is proportionately diminished in size. Usually the finder in a Detective Camera shows simply the image on the plate, but not its relative size and proportions. The Instantaneous Shutter in this camera is provided with a speed adjuster which works from the outside, and the focusing device and scale are conveniently near the finder. This is very important when one is trying to photograph rapidly moving objects.

For timed exposures use a tripod (easily adjusted to the camera by the plate underneath), open the door at the back, so that the image on the ground glass can be easily seen, set the shutter with the opening opposite the lens, and bring into use the felt cap which fits the opening in front of the camera. By complying with these simple requirements you have a complete camera for timed exposures.

	Price complete.	Price without Roll-Holder.
4 x 5 Triad Camera, with Roll-Holder, two Double Dry Plate Holders, or two Cut Film Holders	$35 00	$25 00
Extra 4 x 5 Triad Double Dry Plate Holders		1 25

Holders for Cut Films, same prices as above.



TRADE MARK.

For sale by all dealers in Photographic Materials and the Manufacturers,

THE SCOVILL & ADAMS CO.

NEW PRINTING PAPERS.

KALLITYPE.—A new process recently discovered, yielding prints of a beautiful black tone with a mat surface

PERMANENT, RAPID, SIMPLE, CHEAP.

Send for price-list and toning directions.

TRY ALSO CULLEN'S NEW MAT SURFACE PAPER.
CULLEN'S OBERNETTER PAPER.
CULLEN'S BLUE PROCESS PAPER.
CULLEN'S PLAIN SILVER PAPER.
CULLEN'S FRESHLY SENSITIZED PAPER.

SUPPLIES AND APPARATUS OF EVERY DESCRIPTION.
Sole Agent for Kallitype, New Mat Surface, Obernetter and Manhattan papers.

W. C. CULLEN, 61 William St., New York.

AMATEURS, ATTENTION!



Please remember that in speed and every desirable optical quality no lenses yet constructed can rival

Voigtländer's Euryscope Lenses,

which are made in SEVEN different styles.

BENJ. FRENCH & CO.,
319 Washington St. BOSTON, MASS.

Revised price-List sent on application.
Correspondence solicited.



Patented July 17, 1887.

STAMP PORTRAITS.

These are the only stamp portraits that are gummed and perforated, and being the exact size of ordinary U. S. postage stamps, photographers and others will find them an interesting novelty in advertising their business, as they can be mounted on business and visiting cards, letter-heads, etc.

We also make a size four times larger than the stamp pictures. Send for samples and prices, which will be furnished on application.

Address

H. A. HYATT,
Sole Agent,
N. E. Cor. 8th & Locust Sts.
St. Louis, Mo.

EXAMINE OUR NEW

BOOK CAMERA

BEFORE YOU PURCHASE ANY OTHER.

It is the most unique, elegant and attractive Camera ever produced. Suitable for ladies or gentlemen. Can be used as a hand camera or on a tripod.

SCOVILL & ADAMS CO.,
423 Broome St., New York.

CLEMONS' NEW MATT-SURFACE PAPER.

SOMETHING NEW UNDER THE SUN—A REVOLUTION IN THE ART OF MANUFACTURING.

After many years of scientific research a preparation for the salting of plain photographic paper has been discovered, by which method the finest printing results are obtainable. The advantages are apparent to all.

I.—Constant use will not discolor the silver bath.
II.—Will produce the finest detail in printing.
III.—Any desired tone may be obtained from sepia to jet-black with less gold than ever before.
IV.—The *"New Matt-Surface"* paper when sensitized will keep fresh for a long time if properly stored.
V.—The price has not been advanced.

For sale by

THE SCOVILL & ADAMS COMPANY,
423 Broome St., New York.

Sample Sheets, by mail, 10 cents each.

THE

Tintype Brigades

Are moving for their Harvest Fields, and THE SCOVILL & ADAMS CO. have laid in a superior line of material for their use, consisting of

FERRO PLATES,
CAMERAS,
CAMERA STANDS,
HEAD-RESTS,
FELT BACKGROUNDS,
AND THEIR WELL-KNOWN BRAND OF
PHENIX FERROTYPE OR
POSITIVE COLLODION AND VARNISH,
IN FULL-WEIGHT 8-OUNCE
PHENIX POURING BOTTLES.

ASK YOUR DEALER FOR

S. & A. GOODS.

F. WEBER & CO.'S

PHOTOGRAPHERS' LIQUID OPAQUE,

50 Cents per Bottle,



Is the best medium for blocking out backgrounds or skies, and to cover large and small imperfections in the negative.

F. WEBER & CO.'S

LIQUID INDIA INK,

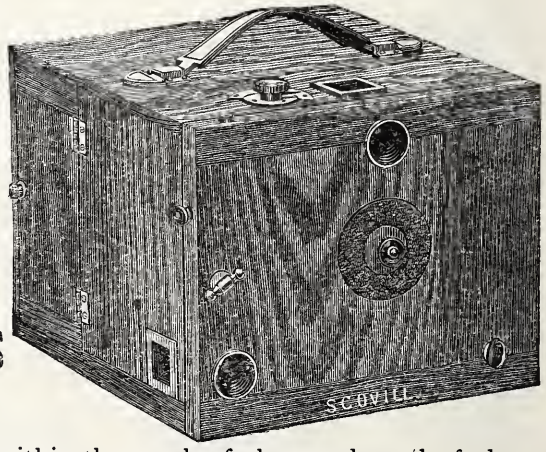
50 Cts. per Bottle.

For marking or numbering negatives, for drawing on matt surface print, and for all purposes where India ink is used.

THE SCOVILL & ADAMS CO.,
SOLE TRADE AGENTS.

IMPROVED KNACK KNACK

DETECTIVE CAMERAS



To MEET the demand for a cheap Detective Camera within the reach of the youth, and of those who want to make but a moderate investment in photographic appliances, we have introduced the KNACK CAMERA, which is certainly lighter and more compact than any other cheap detective camera in the market, and what is still more important, has a much more expensive and more perfect lens.

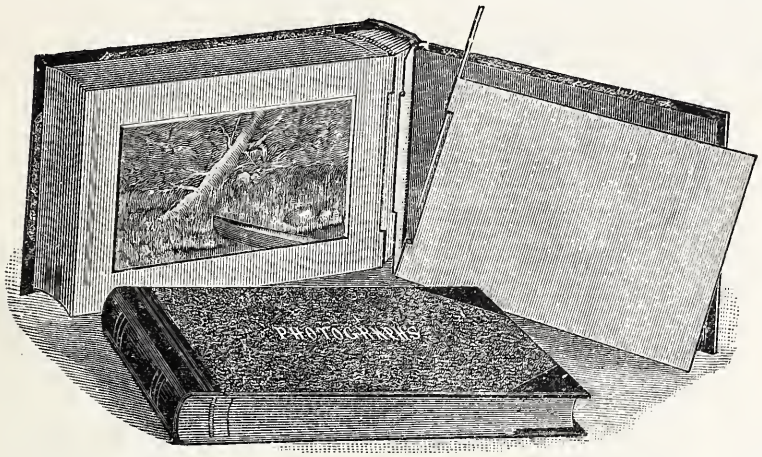
This Double Combination Instantaneous Lens, with Interchangeable Stops, when bought separately costs as much as the whole camera.

The whole front of this camera is hinged, which is a great convenience. The camera has a Recessed Finder, an Instantaneous and Time Shutter with Speed Regulator, Cap for timed exposures, and one Double Dry Plate Holder.

	PRICE.
No. 1 4x5 Antique Oak, Knack Camera, -	**$15.00**
No. 2, " Leather Covered, " "	**17.50**

MANUFACTURED BY THE SCOVILL & ADAMS CO.

FOR SALE BY PHOTOGRAPHIC MERCHANTS.



IMPROVED SPRING BACK

ECLIPSE ALBUM.

PRICE LIST.

IMPROVED SPRING BACK WITH TWENTY-FOUR COLLINS CARDS. WHITE AND GRAY.

No. 1	6 x 7	cards	$2 25
No. 2	7 x 10	"	2 50
No. 2½	10 x 7¼	" upright	3 50
No. 3	10 x 12	"	3 75
No. 3½	12 x 10	" upright	4 25
No. 4	11 x 14	"	4 25
No. 5	14 x 17	"	7 00

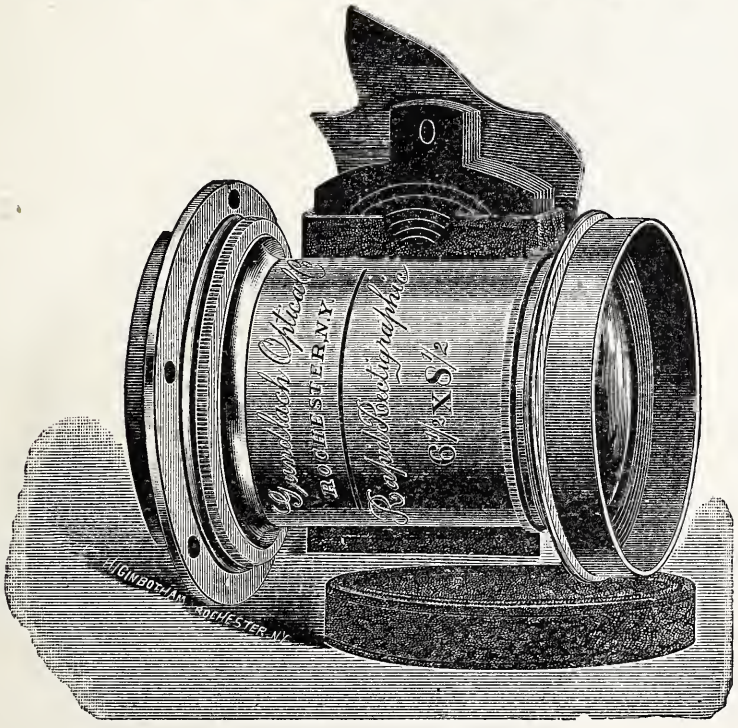
Nos. 1, 2, 2½, 3, 3½ and 4 are handsomely finished in Morocco, half leather bound, with gilt title, and enclosed in a neat box. No. 5 is extra gold finish.

For sale by

THE SCOVILL & ADAMS COMPANY,

423 Broome Street, New York.

GREAT IMPROVEMENTS IN GUNDLACH LENSES.



The *RECTIGRAPHIC* and the *PERIGRAPHIC* are now composed of

TWO APLANATIC TRIPLETS

of a novel form, producing a degree of *Optical Superiority* and *Flatness of Field* which has not been attained heretofore in Photographic Lenses.

The Triplets are of different focal power, and, being perfectly aplanatic, they produce perfect pictures by themselves. Thus the new lenses actually consist of three objectives, which produce images differing in size as 2 to 3 to 4.

Send for descriptive catalogue to the

GUNDLACH OPTICAL CO.,
Rochester, N. Y.

OR TO PHOTO. STOCK DEALERS.

CHEMISCHE FABRIK AUF ACTIEN

(VORM. E. SCHERING) BERLIN.

E. SCHERING, BERLIN. TRADE-MARK. REGISTERED.

PYROGALLIC ACID
RESUBLIMED
From E. SCHERING,
MANUFACTURING CHEMIST, BERLIN.

E. SCHERING, BERLIN. TRADE-MARK. REGISTERED.

SEE THAT YOU GET THE "GENUINE SCHERING'S."

THE SCOVILL & ADAMS CO.,
423 BROOME STREET, NEW YORK.

THE SCOVILL MAGNESIUM COMPOUND

IS ENTIRELY FREE FROM POISONOUS INGREDIENTS.

THE GENUINE ARE IN SILVER WRAPPERS.

In order to demonstrate this, quantities have been eaten at various times. We have often pounded it in a mortar to show that it does not explode.

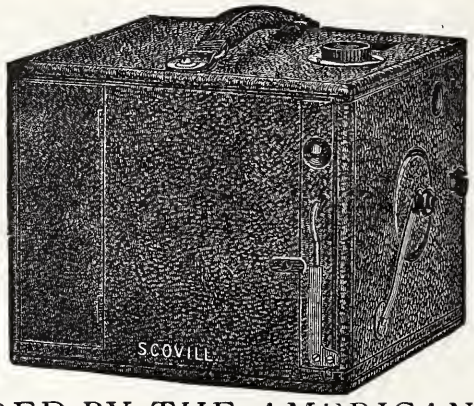
Price of Scovill Magnesium Compound.

In ounce bottles, with fuses.	$0 50
In quarter pound cans, with fuses....	1 40
In half " " " "	2 65
In one " " " "	5 00

Price of Scovill Magnesium Cartridges.

	Per Doz.	Per Gro.
No. 1, put up in packages containing 6 cartridges.	$0 50	$6 00
No. 2, " " ..	80	9 00
No. 2½, " " ..	1 20	13 00
No. 3, " " ..	1 50	17 00

THE WATERBURY DETECTIVE CAMERAS.



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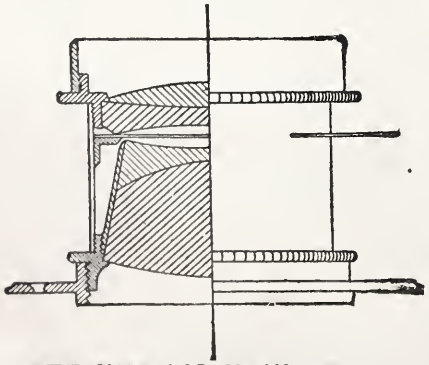
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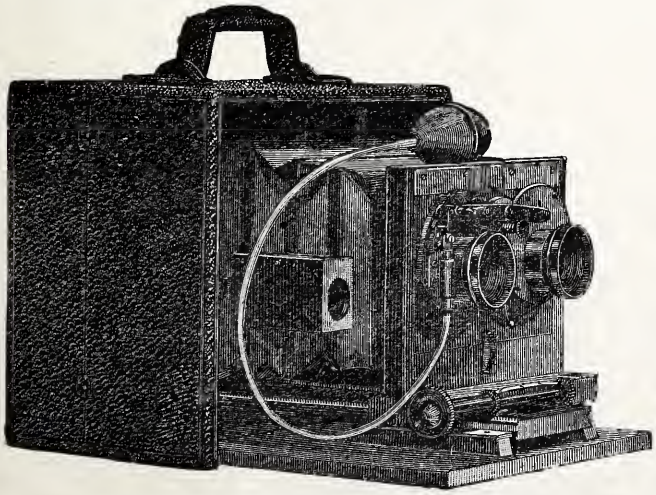
It is commonly known that of all pictures, those which are arranged to give the stereoscopic effect when viewed in a stereoscope, convey the true impression of perspective and solidity. It seems strange, indeed, that of the myriads of instantaneous pictures made, so few are taken with reference to their future use in connection with the stereoscope, *for it is only by that means that the idea of perspective and solidity can be conveyed.* We can only assign as the reason the present almost universal use of hand cameras, and that none of them have, up to this time, been arranged for stereoscopic pictures.

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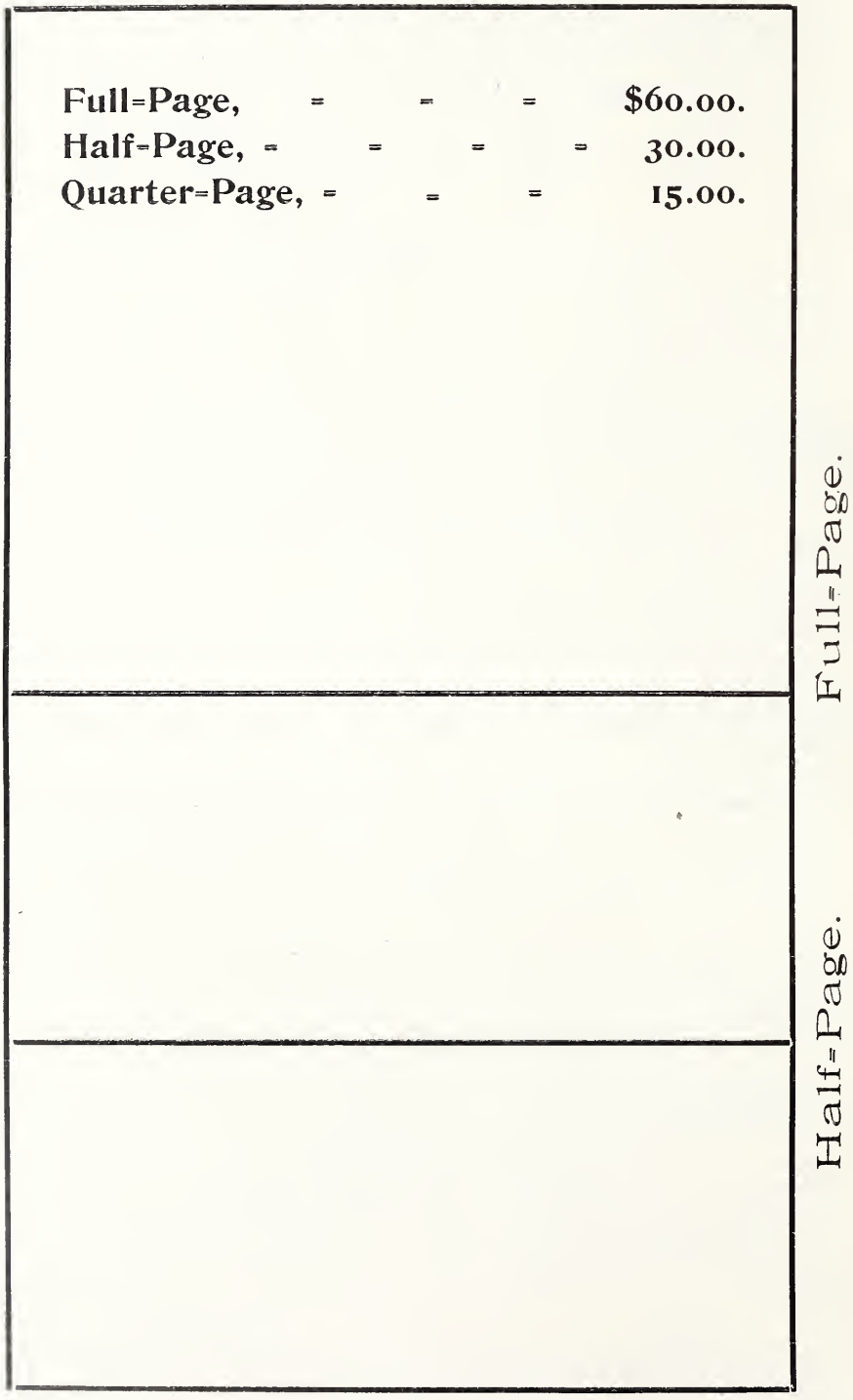
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IN MEMORIAM.

LEWIS MORRIS RUTHERFURD.

THE death of few Americans could be so widely and sincerely mourned among scientific investigators, educators, and personal friends as is that of Lewis Morris Rutherfurd, whose earthly existence ended at his country home, "Tranquillity," New Jersey, on May 30th.

Mr. Rutherfurd was a typical American in the highest and noblest sense. Inheriting ample fortune, his active mind and ingenious hands were able to do for his fellow men and the advancement of human knowledge, work which will have a lasting place in the scientific history of the nineteenth century.

He was born at Morrisania, New York, on November 25, 1816. His father's family can be traced back through its Scotch descent more than seven hundred years. His mother was a direct descendant of Lewis Morris, one of the signers of the Declaration of American Independence. In his early years Mr. Rutherfurd gave proof of that peculiar feature of descent which physiologists have long observed, namely, the inheritance of traits of character belonging to members of the family two or three generations earlier in its history. His grandfather, John Rutherfurd, was United States Senator from New Jersey from 1791 to 1798, and was one of the Commissioners for fixing the boundary between several States, and the laying out of a large part of the City of New York.

At the age of fifteen his education was such as to enable him to enter the Sophomore Class at Williams College, where he graduated, in 1834, at the age of eighteen. While at college his love for investigation was so intense that he became assistant to the professor of chemistry and physics in the preparation of lectures before the class, making many pieces of apparatus for their illustration with his own hands.

Soon after his graduation he began the study of law in the office of William H. Seward, at Auburn, and first practised his profession with Peter A. Jay, and later with Hamilton Fish, of this city. Thus most of his legal study and practice was with men whose later lives were intimately and prominently connected with the Federal Government.

In his early college days Mr. Rutherfurd took his first steps in the field of Astronomy. Finding among the unused apparatus of the college laboratory the disjointed remains of an old telescope, he reconstructed the missing parts and put the whole into working order. While engaged in study and later in the practice of his profession, his leisure hours—or what would be termed such to others—were by him fully occupied in the embodiment of some chemical or mechanical device for the furtherance of his favorite science.

In the early days of his professional life, he married Miss Margeret Stuyvesant Chanler, a niece of Peter G. Stuyvesant. His wife's fortune added to his own ample inheritance was such as to permit the abandonment of his profession and the devotion of his entire time to travel and study. In 1849 he went to Europe where he remained several years. During this visit, he met and studied with Professor Amici, the famous Italian optician, from whom he, doubtless, learned many fine points in optical work, especially in connection with the microscope, which served so well his purpose in later years. When the famous yacht "America" won her great race, during the World's Fair in London, in 1851, Mr. Rutherfurd was one of the Americans on board.

After his return from Europe he constructed upon the lawn of his residence at Eleventh Street and Second Avenue—what was then the finest and best equipped private astronomical observatory in the country; here in the early sixties he made with his own hands for his great equatorial refracting telescope a lens of thirteen inches aperture corrected especially for celestial photography; this

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lens, worked out upon his own formula and the first of the kind ever constructed, was a wonder to the astronomical world, and has since created a revolution in the methods of observation. His photographs of the moon, planets and star clusters, made with this instrument, have not yet been excelled.

At about this time he began his work upon the spectro of celestial bodies ; not being able to find instruments suited to his use, he equipped—with his own and the best tools procurable—a shop in his residence, where he constructed some of the finest apparatus known to science. Many of these inventions of his active mind have served as models in the leading observatories of our own and foreign lands.

Early recognizing the advantages to be gained by the use of diffraction grating of finely ruled lines upon glass and metal instead of a long train of prisms for the decomposition of light in spectra study, and learning that only small imperfect gratings made by Nobert—who kept his process a profound secret—were procurable, Mr. Rutherfurd invented and constructed a ruling engine, upon which gratings were made far surpassing any others known, some of these having more than seventeen thousand lines to the inch; many of these gratings were generously presented to his fellow workers in spectrum analysis. With these gratings his great photographs—more than eleven feet long—of the solar spectrum were made. For the measurement of the distance of stars on the plates made in the great equatorial he constructed a micrometer which has proved most valuable in observatory work. The measurements made upon this instrument filling many manuscript volumes of closely tabulated calculations was issued from the press by Columbia College but a few days before the death of Mr. Rutherfurd, but too late for his examination. His illustrated papers published in the *American Journal of Science*, show him to have been the first to classify the stars by their spectra. His knowledge of chemistry, optics and astronomy enabled him to devise and carry out plans worthy the high position he held in the ranks of the most learned.

In 1867 Mr. Rutherfurd was elected President of the American Photographical Society, in whose official board he had many years served as first Vice-President. During his administration the Society became the Photographical Section of the American Institute. But it was not alone his learning and skill that made him a favorite with those who knew him personally. No one could be long in his presence without feeling that he was a man of rare ability. His tall, erect figure and scholarly face made him conspicuous wherever he went. His dignified, courtly bearing and genial nature made earnest friends of all his acquaintances. His dislike of ostentation and show was a conspicuous trait of his character. He was never known to wear any one of the many decorations, emblems of rank, or acquirements which had been conferred upon him His signature was simply the name given by his parents without the additions bestowed by great societies and institutions of learning. All these were laid away in private recepticles of his home, and but few of his intimate friends ever knew of their existence. Some of the honors bestowed upon him, like the award of the Count Rumford medal, and the naming by special act of Congress as one of the organizers of the National Academy of Science, were too conspicious and publicly known to be hidden away.

The construction of instruments, the perfecting of processes, and the solution of problems which made the proudest works of nature write their own histories, was to him far more than the plaudits of his fellow-men. Rendering the collodion film, stable under all conditions of atmospheric change, and making that film extra sensitive to the light in a telescope which produced the image of a distant planet, sharp in all its details, would alone entitle a man to lasting remembrance.

When he felt that he had reached a time for rest, his instruments of labor, the fine equipments of his observatory and the recorded results of observations, covering a period of many years, were presented to Columbia College, in whose councils he had served as trustee more than the quarter of a century. During the last few years of Mr. Rutherfurd's life, impaired health prevented his taking an active part in astronomical work, but his wise council was sought and recognized as being of the greatest value. His liberality in the diffusion of the knowledge which he had gained was known and appreciated by hundreds who sought his advice. During a personal acquaintance of nearly thirty years, the writer never knew him to refuse aid or to speak an unkind word.

The rigor of our northern winters led him to spend the colder parts of the last twenty years in more Southern latitudes ; sometimes in the south of France but more recently amid the orange groves and tropical surroundings of Florida. While on his journey South in the autumn of last year he contracted a severe cold, through some defect or oversight in the heating apparatus of his sleeping car and he never fully recovered from its effects. While prostrated

and weakened by this attack, the sudden death of a daughter in his northern home produced a depression of vitality—which was lasting. In the early spring he returned to New York with his oldest son, Mr. Rutherfurd Stuyvesant, who had passed the winter with him, and at whose residence he remained a few days. Not recovering his strength and seeming to realize that the end was near, he expressed a desire to reach his country home, the old homestead which he and his ancestors had occupied more than one hundred and fifty years. Soon after reaching "Tranquility"—a home most appropriately named—the symptoms of failing strength became more marked until a blood clot formed on the brain, which, although it rendered him speechless during the last few days, yet did not destroy consciousness until the end, which came peacefully and without apparent pain.

Thus lived and passed away one of nature's noblemen, one whose memory will be cherished by all who had the honor of his acquaintance, and one whose fame will not fade while the lamp of science burns.

O. G. Mason.

PHOTOGRAPHY ABROAD.

Orthochromatic Effects.

There is amongst English photographers a conflict of opinion as to whether plates prepared with eosine give any orthochromatic effect if employed without a yellow screen; some ascertained that the violet and blue rays action is subdued, others that it is not.

On this the learned editor of the *British Journal of Photography* remarks that possibly the lenses used may, in a measure, account for the difference in the results obtained: "We are led to this remark," says he, "from being recently shown a lens with two cemented surfaces, which, when placed on white paper, was decidedly yellow, though the glasses themselves, we were assured, were quite colorless. The Canada balsam, used in cementing, was the cause of the yellowness ....With some old lenses, not only has the balsam become yellow, but the glass also, indeed, the latter was so tinted in the first instance. Now, working with a lens of this description becomes equivalent to using a faint yellow screen."

This is perfectly correct. We will remark, however, that the light yellow tint of the lens is not altogether sufficient to produce an effective orthochromatism if other causes do not intervene, as, for instance, the lighting of landscapes by a yellowish sunshine, as it is frequently the case in this country —late in the afternoon especially—and also in England and other countries where the atmosphere is generally charged with steam.

In 1855 we had in our possession a portrait lens purposely made by C. C. Harisson, with a yellow lens as a part of the meniscus. We never have worked with a better one, and we never obtained since—it was at the time of the collodion process —better gradations with so much ease. The exposure time had to be lengthened, of course, and it is for this reason we parted with it. We regret it now, for it is evident that, in a given time, orthochromatic plates will be used exclusively, even for portraits in the studio, with a yellow screen.

Gelatino-chloride Paper.

J. H. F. recommends in "Photography" the following formula for gelatino-chloride emulsion paper as giving similar tones to albuminized paper.

Make three solutions as follows:

A.

Gelatine	35 grains
Hot water	1 ounce

B.

Sodium chloride	25 grains
Calcium chloride	20 grains
Water	1 ounce

C.

Nitrate of silver (recrystallized)	135 grains
Water (distilled)	2 ounces
Citric acid	25 grains

Place the solution in a water-bath heated to 100 degrees Fahrenheit, and leave here till all the gelatine is melted. Now mix the solutions A and B, and then add two drops of a 20 per cent. solution of hydrochloric acid. Keep the two solutions at a heat of 90 degrees for half an hour, and then add, by the aid of either yellow or red light, pour solution C into A and B combined, drop by drop, stirring well all the time. Now put two drams of alcohol into the vessel which contained the silver solution, and add to the emulsion. The pot containing it must now be placed in the water-bath at a heat of 120 degrees Fahrenheit for one hour and then taken out and let to set for two or three days. You can now filter out any dust or insoluble precipitates not wanted in the emulsion. First, warm gently until it is perfectly liquefied, and then strain three or four times through a linen bag, and all will be ready for coating. Pour the emulsion into a dish, and take hold of a sheet of paper by the ends and

lower gently into the bath, allowing the middle to touch the surface first, and gradually lower the edges till it floats on the emulsion. Leave it here for two minutes and hang up by clips to dry.

The paper, though prepared for printing-out, can be used to print by development, using, necessarily, an acid developer.

A New and Certain Manner of Avoiding Halation.

The causes of halation have been described in this magazine. The reader remembers without doubt that the halo occurs whenever strong light is in opposition to shadow, or bright white to black. It is seen in interiors around brightly-lighted windows, and in landscapes around the tops of the trees and also the roofs of buildings. The remedy most generally employed is to back the photo-plate with a mixture of dextrine and lampblack in water, or of oil of cinnamon, lampblack and turpentine applied with a brush, and, before developing, removed with a wet rag. This is not very practical, and not always entirely prevents halation.

In the *Bulletin de la Société Nantaise*, Mr. G. Toublanc publishes a simple process which, he states, effectively prevents the halo, no matter how great the contrasts of light and shadow. It consists in placing a smoked glass (*verre fumé*) in front or on the back of the lens, but, in preference, in the middle of the lens—where the diaphragms are usually placed. The intensity of the smoked glass should be proportionate to the intensity of the light. By this interposition and using a small diaphragm, which necessarily requires a longer exposing-time, no halation whatever can occur.

Halation never occurs in employing orthochromatic pellicles.

Stenope-Portrait.

(*Portrait without a Lens.*)

In *Photographie*, a new photo-journal published in Paris under the direction of Mr. G. H. Niewenglowski, we find the following formula for the development of stenope-portraits:

A.

Water	1000
Sulphite of sodium	40
Ferrocyanide of potassium	130
Hydroquinone	10

B.

Water	1000
Potassa (caustic)	500

For use one mix ten volumes of A with one volume of B. This developer is quite energetic.

We have lately published an article on this method of making negatives, pointing the different advantages it presents; no deformation, equal sharpness at all the planes.

The sharpness is not, however, that given by lenses. There is around the lines a very slight blurring imparting to the whole picture a softness, a *flou*, which will please the artists of the naturalistic school. It produces in landscape an effect remembering the manner of Corot. In portraits it is especially pleasing, but not so well appropriated to architecture although giving absolute straight lines and a mathematically true perspective.

The time of exposure is much longer than that required when using a lens, but it is not longer, if not less, than that which is necessary to impress a photo-collodion film for development by the silver method.

Fluorography.

The *Revue de Chimie Industrielle et Agricole* publishes the following fluorographic process, stating that it gives the best results. We have already published a similar process which, we think, gives equally good etchings. The reader remembers that Fluorography consists in transferring upon glass a print from a lithographic or phototypic impression inked with a fluorated ink which, treated by sulphuric acid, gives rise to the formation of hydroflouric acid, this acid etching the glass by uniting with the silicates:

Water	100
Glycerine	200
Soap	50
Tallow	50
Fluor spar (powdered)	50
Borax	25
Lampblack	15

The stone or phototypic plate is prepared as usual and should be impressed under a diapositive; the print is therefore negative. When transferred the glass plate is bordered with wax, then flowed with sulphuric acid at 64 degrees Baumé which is allowed to act for about twenty minutes, when the plate, being washed under the tap, then cleaned with a solution of common potash, then rinsed and dried, will be found sufficiently etched.

A Rapid Manner of Reducing the Degree of Concentration of a Solution.

One is often embarrassed to reduce the strength of any solution to a certain percentage.

Here is a process which can render some service and is of a great simplicity:

Let m per cent. be a solution which it is desirable to reduce to n per cent. by adding water, and let x be that quantity of water; we will have

$$\frac{n}{100} = \frac{m}{100 + x} \quad . \quad x = \frac{(100\ (m-n)}{n}$$

x is the quantity of water to be added to 100 grammes of the solution to reduce its concentration from m to n. But if instead of 100 grammes we had only n, the formula would then be

$$x = \frac{n}{100} \times \frac{100\ (m-n)}{n} \quad . \quad x = m-n.$$

Hence we may conclude the following rule:

RULE.—To reduce a solution to a given strength, it suffices to pour in a graduate glass as many cubic centimetres as indicated by the number of the strength which it is wanted to obtain, then to add water until it reaches the division indicated by the strength number of the primive solution.

EXAMPLE.—Here is a solution of hyposulphite at 25 per cent. which one wish to reduce at 8 per cent. One will pour 80 c.c. of it in the glass, and then add water to make up 250 c.c. (A. da Cunha.—Photo Club.)

MR. IVES IN ENGLAND.

WE have already reported the fact that Mr. F. E. Ives, the inventor of Composite Heliochromy, has delivered his lecture on the subject and exhibited his results before the Royal Institution of London, England, on two occasions. At both meetings he was most flatteringly received.

At the twenty-second "ordinary" meeting of the Society of Arts, London, May 25th, he once more delivered his lecture and showed his wonderful results.

The chairman, in introducing Mr. Ives, said Mr. Ives needs no introduction to an English audience; his work in connection with the translation of the continuous gradation of an ordinary photograph into discontinuous gradation is known throughout the world. The excellent quality of the half-tone photographic engravings—so profusely employed in the illustrated literature of America—is largely due to Mr. Ives' initiative. But to-night we are to hear and see the results of his labors in a different direction, that of photography in natural colors, an object of desire that arose in the minds of almost the earliest workers in photography. No sooner had that miracle of science—the production of a photograph in light and shade—been wrought, than the insatiable striving after something higher and better—the best attribute of the human mind—asserted itself in the desire for color in addition to light and shade; and very soon this desire received the stimulus of what appeared to be, if not a complete, at any rate, an approximate solution of of this problem. In the Exhibition of 1851, I remember seeing a photograph on a Daguerreotype plate, which showed some quite vivid colors in the dress of a doll. It was a photograph by Becquerel, and it seemed as though very little more had to be done to realise a perfect result; but that seeming has proved to be illusive; the colors were, to a large extent, accidental, and they were not permanent, and as a matter of fact very little more has been accomplished since that time in that particular line of working. The colors were due, not to any selective action of the light corresponding to them, but to quantitive effect. The principle was false. The only substantial advance that has been made since that time has been made on the different principle of working, followed by Dr. Vogel and Mr. Ives; unless the recent announcement in connection with the achievements of Mons. Lippmann should prove to be true. For fourteen years past Mr. Ives has labored to produce color photographs by the composite method, believing that this was the only road by which success was to be reached.

In the discussion which followed the reading of Mr. Ives' lecture, the Chairman said photography in natural colors, as generally understood, was something different from what Mr. Ives had now shown. What had been wished, but hardly hoped for, was a photograph in which all the colors of nature would be reproduced on one plane surface, in one picture, directly in the camera, and by one print. Mr. Ives had not given them the whole loaf, but he had produced something which might perhaps be esteemed a good half of it. He had shown some very beautiful results, and had explained the means and the principle on which they have been produced with singular clearness and precision. He had shown that in the production of the photographs to form the basis of color photograph combination, not only had the character of the sensitive surface to be considered in photographing the radiations from particular colors, but also the screen to be combined with a particular quality of color-sensitiveness in the plate, and that the separate consideration of either screen or sensitive plate was useless. Mr. Ives' teaching and procedure in relation to the production of negatives for the production of color photographs were applicable not only to the kind of pictures he had shown that evening, but also threw a strong light on the principles to be followed in copying paintings and colored objects generally, with a view to rendering in correct monochrome all the different

values of the color in the oil painting. He conceived that to be a very useful application of the principles now explained.

Professor Roberts-Austen, F.R.S., wished to express his appreciation of the extreme ingenuity displayed in the construction of the camera, and in arranging these marvellous optical effects which had been shown. He had had the privilege of visiting Yellowstone Park, and could bear testimony to the extraordinary fidelity with which the marvellous color effects there seen had been reproduced.

Mr. B. Francis Cobb said there was very little room for discussion; they had simply to listen and learn, and admire the extraordinary results Mr. Ives had obtained. It had frequently been said that if ever color photography was to be achieved, it would be by some means at present little suspected, or by some totally new appliance. Mr. Ives was certainly opening the way to what in future might lead to very great results, and he (Mr. Cobb) could only hope that Mr. Ives would continue the researches which all were watching with the greatest interest, and that later on he would come before them again with still further advances.

Mr. Van der Weyde asked if anything had been done in the way of portraiture by this method. He apprehended the exposure would have to be prolonged, and the light very strong, so that perhaps the sitter would have to close his eyes during the operation.

Mr. William H. Ward said he had had the opportunity, last winter, of seeing, in Mr. Ives' own house in Philadelphia, several of the pictures now shown, and he could say that when displayed by sunlight they were quite fifty per cent. better. That would give some idea of the improved effect which would be obtained with a lantern fitted with an arc light.

Sir Henry Trueman Wood said it would be interesting if Mr. Ives could give some further information as to the way in which he regulated the exposure for each of the three pictures produced on the same film. As he understood they were all produced simultaneously on one film and developed at the same time, and consequently the amount of exposure for each must be carefully regulated. It was obvious that the picture produced by the red rays must require a very much longer exposure than the one produced by rays of higher refrangibility; it would be interesting to know how it was done. One could understand that it might be regulated by varying the size of the aperture, or by other means. A great deal of credit was due to Mr. Ives for the extreme ingenuity with which he had rendered practically useful a method which had been in the minds of a great many people for a long time, and which had been accomplished, with a varying amount of success, by previous experimenters. But Mr. Ives had certainly achieved in this particular direction a very distinct success. The practical application of it had yet to be seen, though it was not difficult to see that it had many possibilities of usefulness.

The Chairman said he should like to know what kind of plate was most suitable for taking these negatives, and whether Mr. Ives had a preference for one particular kind of plate rather than another.

Mr. Ives in reply said he thought a special plate should be manufactured for this work, slightly modified from anything now on the market, but in order to make the operation sufficiently easy and convenient he had adopted commercial orthochromatic plates; the results shown were all obtained with commercial plates manufactured by Messrs. Carbutt of Philadelphia. The one picture which would be seen in the heliochromoscope, a bouquet of English flowers, was taken on an Edwards' isochromatic plate, which was very similar. There were two methods of securing simultaneous equal exposure for three pictures, the plates not being anything so sensitive to red as to the other colors. If the three pictures were taken at one exposure through a single lens, the ray being divided after it passed through the lens, he had a number of ground and smoked glasses of different degrees of density, and having adjusted the color screen to give the density grades he wanted in the spectrum negative, he inserted one or more smoked glasses until he found three pictures developed together after the same exposure. He had another camera in which the pictures were taken on one film by three separate lenses, and in that case the diaphragms were varied; that for the red being much larger than that for the other two. It would be possible to take a portrait by this process now, but it would require an exposure of three or four minutes in a strong light. Plates could be specially prepared which would reduce the exposure in a strong light to possibly 15 or 20 seconds, but inasmuch as the process was not practically available for portrait-work at present, he had not troubled himself with experiments in that direction.

The Chairman then proposed a vote of thanks to Mr. Ives, which was carried unanimously.

ON THE DETERIORATION AND FADING OF GELATINE NEGATIVES.

It is a well-established fact that gelatine negatives fade and undergo certain deteriorations which spoil them. This is unfortunate, indeed. Every experimenter should take the matter in hand to ascertain the causes and point what, in their opinion, are the most reliable remedies; for there are negatives of very great value which should be preserved by any means, for instance those made for scientific researches, and future references and investigations. It is true that permanent prints—those in greasy ink which we know with certainty to stand the test of time—can replace the negatives, but, however, as the paper when damped does not assume in drying its original shape and dimensions, prints of subjects from which mathematical measurement is to be taken cannot replace them.

We know at present several kinds of deterioration:

1. The film comes off from the plate. This is caused by the contraction of the gelatine film while drying. To secure its adherence a water glass and other substrata are recommended; although effective to prevent blisters, falling off, etc., during the photo-manipulations, they are not in the case in question; even should the film have a certain thickness it scales off the surface of the glass plate upon which it adheres.

2. Another defect is the appearance of spots due to moisture and germs from the atmosphere. It is, properly speaking, a phenomenon of decay. It has been studied under the microscope by Mr. T. W. Armstrong, who communicated his observations to the *British Journal of Photography*, Nos. 1664 and 1668. Varnished negatives made in 1866 when examined two years after were found to be "attacked," says Mr. Armstrong, "by a disease in the shape of minute spots of a brown color, and these had the appearance of eating down into the film. . . . When examining a spot with the microscope, I was forcibly surprised to detect a distinctly effervescent action going on in the film, and this was evidently being brought about by the bursting of very minute globules that were being rapidly formed. Here, then, was the solution of the difficulty. A pronounced decomposition was evidently going on in the gelatine."

Similar yellow spots have been observed by the writer. But they were due to an entirely different cause. A plate was examined before use, and the film was found to contain some minute air-bubbles, which happened quite often in a brand of plates he used a year ago. And in the negatives, washed with the usual care, the spots appeared in less than two months, being due, almost to a certainty, to traces of the fixing solution retained in the bubbles in question.

3. The last cause of accidental imperfection is the imperfect fixing of the negatives. This is well known, and is prevented by fixing in a second bath of sodium thiosulphate.

4. Fading. The writer has not seen an entire case of fading such as on gelatino-silver prints (aristotypes), but only a beginning of it, which is ascertained by the change of tint of the negative and its edges turning to a yellowish brown color. This defect is now more common. It is due in great part to the use of the acid fixing-bath, so called, which is in reality a compound yielding sulphur to silver which is transformed into silver sulphide. Hence the causes of fading would be similar to those originating in silver prints.

The remedies to avoid as much as possible the deterioration of gelatine negatives suggest themselves.

Fixing in new plain sodium thiosulphate solutions.

Washing thoroughly.

Converting into sulphate, by means of diluted hydrogen dioxide rendered alkaline by a small quantity of aqueous ammonia, the traces of the fixing compound mechanically retained into the gelatine film; and protecting the silver-image and the gelatine from the atmospheric influences not by a varnish superficially applied, but by one forming a whole with the film. For this purpose we recommend the varnish Mr. J. B. Gardner used during over ten years with great satisfaction both for collodion and gelatine negatives. It is compounded as follows:

White shellac	20 parts
Alcohol	30 parts
Aqua ammonia 26° Baumé	20 parts

When dissolved add:

Glycerine	2 parts
Water	70 to 80 parts

The negative washed and drained is flowed with this until greasiness has disappeared, then the varnish is allowed to soak in for a moment, etc.

Will these treatments effectively insure permanency? Time will tell. Till then it is advisable to duplicate negatives of value (or to make a diapositive from them) by a process which has produced clichés having suffered no alteration since beginning of photography.

Waxed paper negatives are permanent. Those made in 1852, which, since then, were kept in our

portfolio, are intact. But the process is out of question for our present purpose.

Albumen diapositives made in 1851 are also unaltered, having however slightly increased in density. They are not varnished. In this process the photo film is exceedingly thin, not certainly one-tenth of one millimetre ; the picture is superficial and built up by a compact deposit of metallic silver, as in every other process by acid development. There is, however, a possible cause of deterioration—not probable if the negative is varnished as said above—which should not be overlooked; albumen absorbs oxygen from the air in evolving carbon dioxide. It is therefore decomposed. If moisture intervenes, fermentation soon sets in.

Collodion negatives seem also to be permanent. We have some made by Mr. Victor Presvot and ourselves in 1854, and others made a few years later, prior to 1860, by Mr. Lewis M. Rutherfurd, to test different compounds of collodion in regard to their sensitiveness to the rays of the spectrum, which are well preserved. The image was developed by the acid method and fixed with potassium cyanide.

Should this process be selected, it is important to use an albumen substratum, and, to protect the collodion film, a *thin* elastic varnish.

P. C. Duchochois.

ON THE USE OF PARAMIDOPHENOL.

[Translated for The Photographic Times from *The Bulletin* of the French Photographic Society.]

The *Bulletin* of the Society for February 15, 1892, mentions a formula of a paramidophenol developer, given by Dr. Eder, which has called my attention by its proportion truly infinitesimal. It is a question of nothing more than 40 centigrammes of paramidophenol by litre of the developing solution, which would be strangely economical and denote an extraordinary energy in the new product. I saw at once that there was an error of translation, for the solution gives no trace of an image, after the immersion, during several minutes of a plate suffieiently exposed. I have been thus led to search what practical formula should be recommended.

In the first place, I will say that paramidophenol appears to be an excellent developer for plates exposed in the studio. I cannot yet give an opinion about the instantanés, not having had the occasion of developing a sufficient number of them.

My first assays were made with the one-solution developer with lithia prepared by Messrs. Lumiere, and I do not hesitate to affirm that I do know any one which is superior to it. But I have a predilection for the compound I make myself, and I fear the automatic preparations which cannot, no matter what is said, be applied to all the plates, nor to all the exposure-times.

The little solubility of paramidophenol in water and in a solution of sodium sulphite has been objected. This is true, but the energy of this developer is such that it should be employed in small proportion in order not to run the risk of spoiling the negative. One however can increase its solubility by adding to the solution a sulphite with a few drops of caustic potassa at 10 per 100, or of a saturated solution of potassium carbonate. Yet this quantity should be small, for the alkali thus introduced into stock solutions tends to decompose them, which is seen by the more and more deep discoloration of the solution. I have successively employed the basic paramidophenol and the hydrochlorate of paramidophenol. Both acted equally well, but the latter allows a greater dose of alkali, as it should be expected. Their degree of solubility is sensibly the same, about 3 to 4 grammes by litre of a 15 per 100 solution of sodium sulphite at the temperature of 12 degrees C. By the addition of a little alkali this solubility is nearly doubled.

But a developer thus compounded is most energetic, and for time-exposure, should be diluted in order to be able to well observe its action.

In these conditions, I am inclined to give the preference for time-exposures to a simple solution of 4 parts of paramidophenol in 1000 parts of water and 150 of sodium sulphite; dissolve the sulphite by the aid of heat, then add the paramidophenol and agitate until all is dissolved. To develop, add to the quantity of this solution, sufficient to cover the plate, from 2 to 10 per 100 of a saturated solution of potassium carbonate, according to the results desired. With very little potassa, one obtains strong negatives with well-defined oppositions. The more one increases the dose of alkali, the more the image becomes softer and the more the blacks become transparent, and this in an indefinite way, so to say. As a consequence, there is a limit beyond which the negative will become exceedingly too transparent. No veil is to be feared; there is no need of bromide. We have therefore at hand a certain means to obtain an image such as desired, if the exposure-time is normal. One can easily develop three or four negatives in the same bath, unless the proportion of alkali be too large, in which case the solution becomes colored and soon exhausts its energy.

Mr. Chardon, with whom I have made these studies, has obtained a ready-made developer, which keeps very well, with the following formula:

Water, warm	1000
Sodium sulphite	200
Potassium carbonate	80

to which is added 5 parts of paramidophenol.

It can be employed as it is, or diluted with its volume of water, according to the result to be obtained, and if one desire a very soft effect, a certain proportion of potassium carbonate should yet be added.

These formulas are very elastic and it is this, I think, which makes their merit. By taking as a solvent a warm solution of sodium sulphite at 15 or 20 per 100, then adding from 2 to 5 parts of paramidophenol per 1000 parts, and potassium carbonate in a proportion that experience will tell more than all the formulas, one will obtain an excellent developer giving all the gradations of tones, blacks always transparent and every detail in the shadows. For my part I do not know any other developer, except however, pyrogallol, by which such results can be obtained.

Positive proofs on gelatino-bromide paper can also be developed with paramidophenol but on the condition of using a developer three or four times weaker than for negatives.

Audra.

ON CORRECTIONS OF DISTORTIONS, AND THEIR RELATION TO PERSPECTIVE IN PHOTOGRAPHY.

(*Continued from page* 311 *and concluded.*)

Having now examined the nature of these distortions and means for their correction, we can better appreciate their effect as misrepresenting in our photographs the true proportions of buildings, towards which we may have tilted our camera to get our image better arranged on the plate, omitting, however, to adjust the swing-back. The resulting convergence of vertical lines we all know, but have not generally recognized the effect that by pointing our lens *upwards* we necessarily foreshorten the height of a building and diminish the angle under which that height is represented.

Here, however, the reader may, perhaps, be ready to exclaim, "And is not this quite right? Must it not equally diminish the angle under which we should see it in natural vision? And does it not, therefore, really come to the same thing?"

This, indeed, is to raise an interesting question, and one of vital import to the relations of photographic perspective to that of natural vision.

The direct and obvious purpose of natural vision seems naturally to be to see things as *they are*—to inform us of that reality which we habitually desire to know; and, doubtless, it is thus that a sense of *true* form, rather than of apparent form, comes always to domina e our visual perceptions. The very act of looking *up* prepares us for the natural effect of foreshortening, and *discounts*, so to speak, the effect of it on our consciousness. Thus, in natural vision of the depth and solidity of the actual scene, our minds strive toward the solid reality as it is in manifest truth, and our perception is far less strictly according to the apparent angles subtended than they are when viewing a representation on a plane surface, whose solid reality cannot be similarly manifest. We must, therefore, reply to these questions. No, it does not; it never is or can be the *same thing*, whether we look on the object itself, as in natural vision, or whether we see merely a representation of that object. The process of building up in our visual perception a mental image, through which we become impressed with a sense of height and magnitude, suggesting a feeling of loftiness and something of sublimity, such as may correspond to the effect the architect aimed at producing, and as may awaken through this intelligent perception emotions, sometimes of awe, and always of dignity, to mingle with our admiration, is necessarily a very complex one. It proceeds from many obscure causes, and is affected by many subtle influences. Broadly, its result is to interpret to us in the most just manner, and with the greatest truth of effect, the *actual* form and dimension, rather than strictly to convey that apparent form and magnitude, corresponding exactly with some particular position and distance, such as might perhaps have been unintelligently apprehended through the foreshortened images were that foreshortening not unconsciously allowed for, as it were, in the mental perception. For without those subtle causes and influences which do actually, though unconsciously, build up in our perceptions the mental image of what we see, the real height of a tower would be dwarfed to us whenever we looked up at it; though, in point of fact, that height sometimes impresses us all the more strongly when we do so. Much, indeed, of that vivid sense of majestic dimensions, which we know as a sense of reality, might then often fail us altogether. In vision of a *representation*, be it a painting or a photograph, this would always be very much the case, so many of these subtle influences being then absent. In a painting, the artist endeavors to copy and to present the *subiective image* present to his mind, and his picture is naturally affected by all the influences which have built up that mental image in his own perception. His cultured observation and feelings should be peculiarly alive to these influences, and his art is to indicate their various effects by innumerable artifices, the presiding principle of which is the imitation, even to exaggeration, of such subordinate effects as in natural vision are accompanied by the feeling attained, and as may therefore, by association of ideas, the better suggest that feeling through the representation. His means, too, may include all such equality of definition in near and distant parts of the scene depicted as we obtain in natural vision by ciliary accommodation; and he also claims a success in endeavoring to imitate that peculiar roundness of stereoscopic effect supposed to be given us naturally in binocular vision of near objects. Perhaps, however, that is rather an ideal goal than a result actually attained. It would be safest to say that at present the painter has advantages as regards some parts of his perspective while we have advantages in others. A real and com-

Pope Leo XIII has shown the deep interest he feels in the World's Fair and in America by deciding to exhibit at the Fair some of the rare treasures of art, literature and history which the Vatican contains. Archbishop Ireland, now in Rome, has cabled this information and asked for space for the exhibit. The Vatican contains a collection of art and other treasures which cannot be duplicated and which are priceless in value. The exhibit will, no doubt, contain many of the most interesting of these treasures, and will attract, perhaps, more attention than will any other one display at the Exposition. This action by the Pope will certainly tend to increase greatly the interest taken in the Fair by all Catholic countries, and thus render it a greater and more successful Exposition, and one in which the entire world will take pride. To Hon. Thomas B. Bryan and Mrs. Potter Palmer, as well as to Archbishop Ireland, is due much credit for using their influence to effect the result mentioned.

The Editorial Table.

Received from Mr. G. W. Holstein, of Albany, Texas, a very pretty photograph of a Mexican sheep herder riding on a donkey. It is very characteristic of his country.

We have received from Mr. E. Decker, of Cleveland, Ohio, a portrait, printed on a 16 x 20 in. sheet of 3 Crown extra brilliant albumen paper, which, as usual, shows the good artistic taste of this distinguished photographer. The model is well posed and lighted with soft yet effective gradations.

The programme issued by the New York Photogravure Co., on the occasion of the picnic of its employés, is a most attractive little souvenir. The cover contains a pretty photogravure, with an engraved remarque on its margins. The four pages, within, contain the programme, order of dances, etc. About 200 people attended the picnic, which was voted an entire success by all present.

President Harrison and his party visited Kodak Park, at Rochester, on last Memorial Day, and The Eastman Co., with their usual enterprise, secured an excellent photograph of the group. They have sent us a copy in which we distinctly recognized not only the President, who stands in the centre of the group, but also Governor Flower standing next to him, Secretary Noble, the Honorable Frederick Douglass, and a number of well-known Congressmen, and others prominent in our National affairs.

Record of Photographic Patents.

476,357. Photograph holder. Viola J. Augir, Springfield, Mo.

476,481. Apparatus for trimming photographic prints. Harry H. Newcomb, Boston, Mass.

476,562. Photographic camera. William Scorer, Havant, England.

Queries and Answers.

277 M. H. THOMAS wants to know why some samples of bleached shellac will not dissolve thoroughly in alcohol? Under the best circumstances will the solution be turbid, even after filtering through paper?

277 *Answer.*—We found this to occur when much hydrochloric acid which is used in the bleaching of shellac, adheres. To remove the acid we recommend to reduce the shellac to a coarse powder, spread it out in a thin layer, expose to the air, sprinkle ammonia over it in intervals of an hour or two, and turn the powder occasionally. In a day or two, and when the shellac is perfectly dry, all acid will have evaporated, and the alcoholic solution will be clear and transparent.

278 E. G. N.—Is there a tent made, or a material of which it can be made, in which a quick plate can be *safely* developed?

278 *Answer.*—Photographers' tents are but rarely made now-a-days; but if you wish to construct a contrivance for developing plates when travelling we advise to use ruby and golden fabric, sold by Scovill & Adams Co., for 50 and 60 cents the yard respectively. The two together give a perfectly safe light for high sensitive plates, provided they are not color-sensitive. If so, obscure the light with two thicknesses of brown tissue paper.

279 SILVER CREEK.—Plates developed for a long time in pyro, eikonogen or hydrochinone assume finally a yellow color, and an irridescent deposit on the surface not deleterious perhaps to printing, but very much detracting from the good looks of the negative. Are there any remedies against this annoyance?

279 *Answer.*—Either of these developers when exposed to air for a long time becomes oxidized, in which condition they will stain the gelatine film. Para-amidophenol does not produce such effects. and is therefore so much employed in modern photography and especially so when absolute transparency and opacity is the object in view.

Yellow stain and iridescence can, however, be removed from the plate, by washing it with a dilute solution of ferricyanide of potassium, before the fixing agent is entirely removed from it. Care should be taken not to allow the solution to act for too long a time, else might the intensity of the negative suffer considerable reduction.

280 ARIZONA finds it difficult at times to procure water enough to wash his prints well. Acetate of lead has been spoken of as a ready hypo eliminator, instead of plenty of water, but he hesitates to use it, because of PHOTOGRAPHIC TIMES being so much opposed, for apparently good reasons, to the employment of lead for toning purposes. Is there any other remedy to save water in toning prints?

280 *Answer.*—To eliminate hypo with any of the salts of lead, the acetate or nitrate is a desperate remedy, and in the end worse than the evil, as our most learned photo-chemists have shown. We can recommend to you the different hypochlorous salts, of which none is as effective as the hypochlorate of zinc sold by Scovill & Adams Co. under the name of S. P. C. hypo-eliminator. Follow the directions on the label and you may save over 50 per cent. of water generally needed for washing prints,

THE PHOTOGRAPHIC TIMES.

AN ILLUSTRATED WEEKLY JOURNAL DEVOTED TO THE ART, SCIENCE AND ADVANCEMENT OF PHOTOGRAPHY.

Issued every Friday.

W. I. LINCOLN ADAMS, Editor.

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Commercial Intelligence.

Examine our advertising pages! New announcements are made every week, which are of value to all interested in photography.

Over 100 advertisers have already engaged space in "The American Annual of Photography and Photographic Times Almanac" for 1893, many of them taking several pages.

The American Annual of Photography for 1893 will be the greatest issue of a photographic publication ever made in any country. Already over 30 full-page pictures of the highest order of merit have been secured.

H. A. Hyatt has issued his Bargain List for the Spring of 1892 which all in search of real bargains in photographic goods should send for. Both the Bargain List and the No. 12 Catalogue will be sent by addressing Mr. Hyatt, at N. E. cor. 8th and Locust Sts., St. Louis, Mo.

"The Leader" View Camera is made of well-selected material, finely polished and well finished.

It is provided with the S. & A. Patent reversible Back, the same as used on the Acme View Cameras.

Has rack and pinion movement, back focus and the metal parts are nicely nickel plated.

Cone bellows which is attached to the front, allowing it to be raised or lowered with the lens, thus avoiding a possibility of cutting off the rays of light. Price, with canvas case and one double plate-holder, $24.

A circular from the Heyn Photo Supply Co., of Omaha, Neb., announces that the litigation in connection with that company has been settled. The bill filed by Mrs. Sabina Heyn asking for a receiver has been dismissed, and Messrs. Siegfried Heyn and Emil Ganz, who have heretofore conducted the business of the Heyn Photo Supply Co., are no longer connected with this company in any capacity. The new officers of the company are Mr. Moritz Meyer, President; Mr. H. H. Heineman, Vice-President, and Mrs. Sabina Heyn, Secretary and Treasurer. The financial affairs of the company have been placed on a sound basis, and it is prepared to meet all its obligations promptly. If you have any claims against this company please send us by return mail a detailed statement, and we will make a prompt remittance for all accounts due. Mr. W. A. Taprell, formerly of Smith & Patterson, of Chicago, will be the business manager of the company.

"It Stands at the Head."—Engraving and photography have come to be twin arts. Admiration for one, induces a like sentiment for the other and one of the most welcome exchanges that comes to our table is THE PHOTOGRAPHIC TIMES. For the enthusiastic amateur or the professional, it is full of valuable suggestions to the art of photography, while for those who love the beautiful we commend its handsome engravures, one of which prefaces its pages each week. It stands at the head of the photographic journals of the country.—*Illustrated Pacific States* for March.

The Acme Automatic Kodak Counter is going off with a rush. All Kodakers should have it. Price only $2.

Business Notices.

FOR SALE.—A new 4¼ x 6½ Mogey Rapid Scenograph Lens; an excellent lens for landscapes, instantaneous views and groups. Regular price $20; will sell for $15 cash. Address "SCENOGRAPH,"
Care THE PHOTOGRAPHIC TIMES Office.

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W. P. BUCHANAN, Importer, Philadelphia.

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363 W. Jeff St., Louisville, Ky.

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WANTED.—No. 416, September 6, 1889, issue of THE PHOTOGRAPHIC TIMES. Will pay fifty cents for this copy if in good condition.
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The Porcelain Picture. Towler, New York, 1865. Paper, pp. 47..... 25
Orr's Circle of the Sciences, Vol. VII. (contains "The Photographic Art," by James Martin, 204 pp.). London, R. Griffin & Co., 1860. Cloth, 12mo, pp. 574..... 50
pp. 113, paper..... 10

Odd Numbers and Volumes of Photographic Journals.

Seely's American Journal of Photography, Vol. VI., Nos. 1–19 (July, 1863, to April, 1864).

Humphrey's Journal, Vol. XV., 1863, Nos. 10, 15, 16, 20, 21, 22, 23, 24.

Photographische Monatshefte, Nos. 7–19 (December, 1862, to December, 1863).

The Photographic Times, Vols. III., VI., IX., XI. and XIV. Bound in red cloth, $1 each; regular price, $3.

American Journal of Photography (McCollin), Vol. V., No. 2; Vol. XI. (1890), complete, except Nos. 1 and 4. Vol. XII., except January, February and June.

Bulletin de la Société Française de Photographie. 2d series. Vol. VII., Nos. 1–6.

Anthony's Bulletin, Vol. XIX. (1888), complete, Nos. 1–24.

The Practical Photographer (English), Vols. I. and II. (except No. 18), 1890, 1891.

A few *very* odd numbers of Photographic Notes, Daguerreian Journal, Photographic and Fine Art Journal, Magic Lantern Journal, Photographic Herald, etc.

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Prices of Rapid Rectilinear Lenses, Series B :

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Photographers can increase their business during the holidays by advocating the Platinotype.

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Are made of the same glass and on the same curves as their other lenses, but are in less expensive mounts ; the quality therefore is perfect, the price greatly reduced. Send for list.

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A *good* article in this line is always hard to find. The *package* paper is variable and not to be relied upon. The motive of this little "Ad." is to tell you of our *special* Blue Paper. It is made fresh every day, on imported paper ; is 50 per cent. cheaper than other papers, and withal is the best. Per yard (27 inches wide), cut to any size, 25c. Send 5c. for sample. THE OBRIG CAMERA CO.,
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With para-amidophenol there is no staining of the film, as with eikonogen and hydrochinon when development is prolonged, absolute transparency and opacity is secured, and the time of exposure is reduced about 30 per cent. without injury to half-tones and middle-tints.

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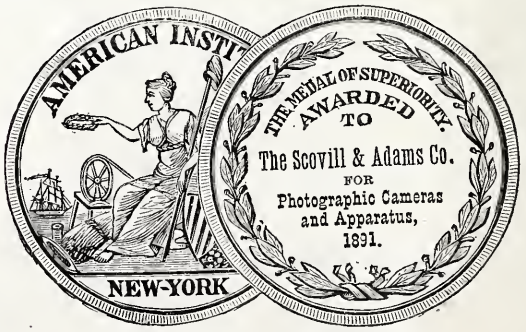
Para-amidophenol (pure)	100 grains
Sodium sulphite (crystals)	3 ounces
Potassium carbonate	1½ ounces
Water	32 ounces

FOR USE.—Take 1 ounce of the above solution and from 2 to 4 ounces of water, according to the length of exposure.

The stronger the solution the greater the intensity of the resulting negative ; the more diluted the solution the greater softness and more detail.

PURE PARA-AMIDOPHENOL HYDROCHLORATE,
IN ONE-HALF OUNCE BOTTLES,
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The term of the local class 1891-92 closes on Saturday, April 30th.

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Printing Methods. — Albumen, Matt-Surface Paper, Chloride of Silver, Gelatine and Collodion, Bromide of Silver and Kallitype paper.

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Still Ahead: Read what is said of **this Season's Work.**

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EASY MANIPULATION,
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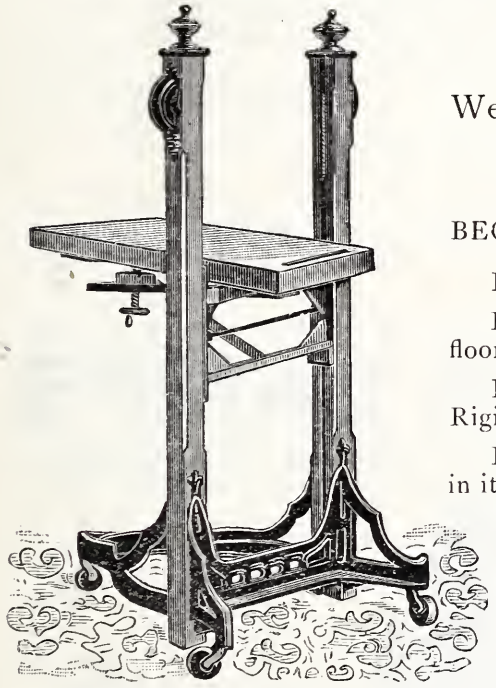
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It is simple in construction and will not get out of order.

It will enable you to get your Camera within 13 inches of the floor, or as high as you wish from the floor.

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It is the invention of a practical photographer and is perfected in its details. WARRANTED PERFECT.

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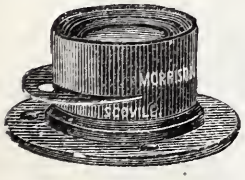
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No. of Lens.	Diameter of Lens.	Size of Plate.	Equivalent Focus.	Price.	
0	1 inch	3¼x4¼ inch	2½ inch	each, $20.00	
2	1 "	4 x 5 "	3¼ "	25.00	
3	1 "	4¼x 6½ "	4¼ "	25.00	These 5 sizes will
4	1 "	5 x 8 "	5¼ "	25.00	fit into 1 flange.
5	1 "	6¼x 8½ "	6¼ "	25.00	
6	1 "	8 x10 "	8 "	30.00	
7	1½ "	11x14 "	10½ "	40.00	These 2 sizes will
8	1½ "	14x17 "	14 "	50.00	fit into 1 flange.
9	1½ "	17x20 "	17 "	60.00	These 3 sizes will
10	1½ "	20x24 "	22 "	80.00	fit into 1 flange.
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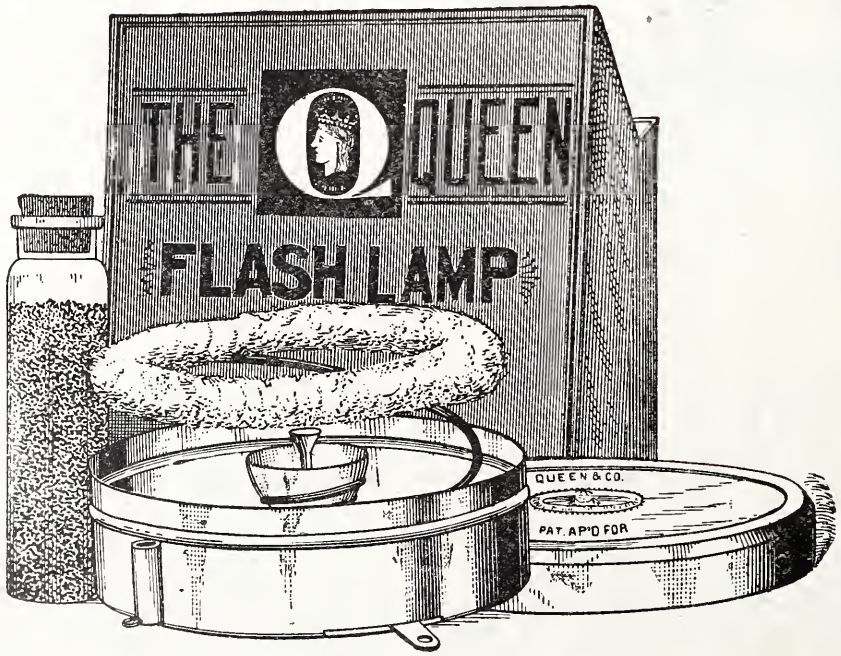
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$1.50

STATISTICS:

Depth 1¼ inches
Diameter 4 "
Weight 4 ounces.

Charge (small) 20 Gr., (costs about 1½ cents.)
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Size of room effectively lit when good lenses are used, about 25 x 30 ft.
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WITHOUT large advertising or expensive demonstrating is rapidly taking the lead.

MERIT alone can do this, and users of Bromide Paper, who are ambitious to make the highest standard of work, are asked to give it a trial.

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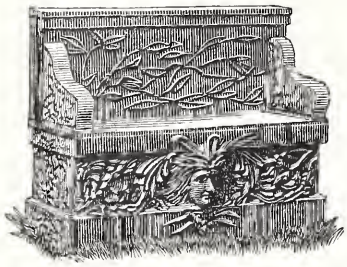
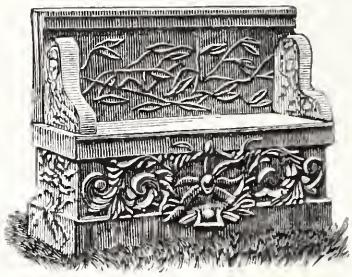
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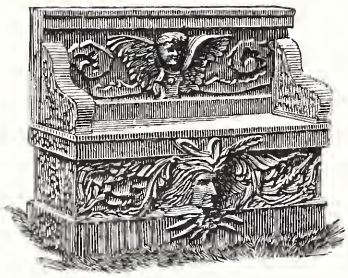
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It works perfectly and is always clear.

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WALL and BENCH COMBINATION.

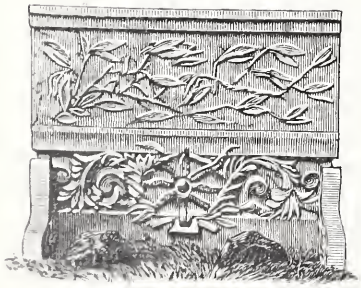
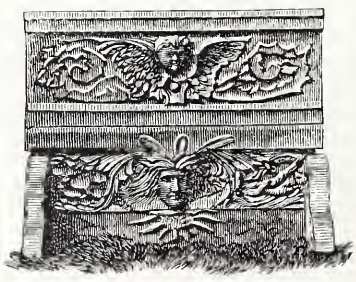
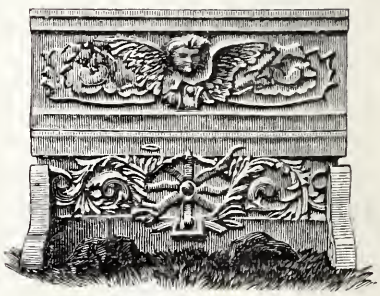
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New $5 Hand Camera

Is not a toy, as some may have supposed, on account of the remarkably low price at which it is sold, but a good, practical working instrument, one that we can recommend as being superior in every respect to any camera sold at double the price. It will make pictures 4 x 5 size, either snap-shot or on a tripod. More amusement and instruction can be had with one of these cameras this summer than will last you a life-time.

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Felt Backgrounds.

The Scovill & Adams' Plain Felt Background, recently introduced, is a great boon to all Photographers, both Professional and Amateur.

It is made of strong, thick and even stock, and is of an agreeable neutral drab color. It is especially suitable for vignetting. The texture of the cloth absorbs instead of reflecting light, and thus produces soft effects, and agreeable depth in print. The liability of defacement by water stains is obviated.

The prices of these grounds are as follows:

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5 x 6 "	2.75
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These sizes may be sent by mail on receipt of 35c. extra.

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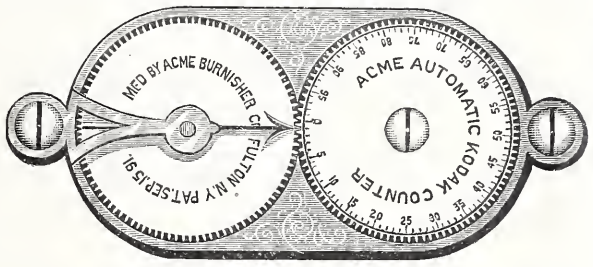
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ANY ONE CAN ATTACH THEM IN A MOMENT.
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TELLS EXPOSURES REMAINING ON ROLL.
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IN ONE SOLUTION.

An eight (8) ounce bottle containing developer sufficient for developing 100 5 x 8 negatives.

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An Entirely New Magazine Camera,

Carrying 12 4 x 5 Glass Plates.

Most Simple in Action. Never Misses.

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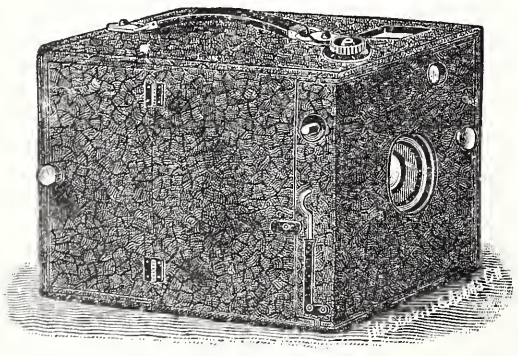
Fitted with a most ingenious Shutter, by which the plate is never exposed except during action.

AN EXCELLENT "DOUBLE COMBINATION" LENS.

Price, only $30.00.

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THE TRIAD CAMERAS.



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For commercial purposes, for instance, such as the reproduction of photographs for illustration, it has been demonstrated that collodion "wet" plates are better than dry plates. For the use of the amateur, on the other hand, dry plates are much better than wet plates. Though many new supports have been tried, the sale of glass dry plates is larger now than ever before. Where only a few pictures are to be made on one day's outing it is likely that the experienced photographer will always use dry plates or cut films.

If he is going away for a summer vacation, or for a trip abroad, and expecting to to make a large number of pictures, he will procure a roll-holder loaded with continuous films. This will save him the bother of developing while he is away from home, and of changing plates; but he cannot well know what results he has secured until he has exposed the entire roll and has had it developed.

For those who want to use celluloid instead of glass plates, and are not willing to trust to good luck in the exposure of the complete roll of film, we offer with the "TRIAD" camera a *double* film holder which is very light. If the amateur carries six of these holders (loaded with twelve films) he is well supplied for one day · that is, if he is prudent and aims to get only really good pictures. At night, either in a photographic studio or in his own hotel room, the exposed films may be put away into safe receptacles, and another lot of unexposed films substituted for them.

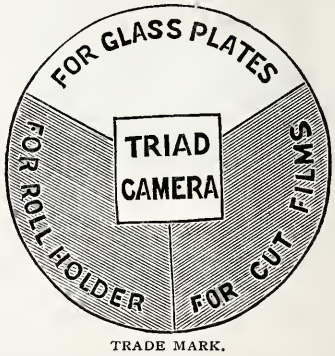
The Triad Camera is fitted with the latest improved Roll-Holder for continuous films, two double holders for glass plates, or two double film holders, if the latter are preferred.

This Camera is fitted with an Instantaneous Rapid Group Lens with easily interchangeable diaphragms —the most satisfactory detective camera lens ever made. It has a finder so constructed that the image is the same as that on the ground glass, though of course it is proportionately diminished in size. Usually the finder in a Detective Camera shows simply the image on the plate, but not its relative size and proportions. The Instantaneous Shutter in this camera is provided with a speed adjuster which works from the outside, and the focusing device and scale are conveniently near the finder. This is very important when one is trying to photograph rapidly moving objects.

For timed exposures use a tripod (easily adjusted to the camera by the plate underneath), open the door at the back, so that the image on the ground glass can be easily seen, set the shutter with the opening opposite the lens, and bring into use the felt cap which fits the opening in front of the camera. By complying with these simple requirements you have a complete camera for timed exposures.

	Price complete.	Price without Roll-Holder.
4 x 5 Triad Camera, with Roll-Holder, two Double Dry Plate Holders, or two Cut Film Holders	$35 00	$25 00
Extra 4 x 5 Triad Double Dry Plate Holders		1 25

Holders for Cut Films, same prices as above.



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Photography on Porcelain made easy.

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LUXOTYPE OPALS.

Ready Sensitized, Printing Out, Toning and Fixing, same as Albumen Prints.

LUXOTYPE TRANSPARENCY AND LANTERN PLATES,

No Development, Printing Out, Toning and Fixing as usual.

LUXOTYPE Toning and Fixing Solution.

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These are the only stamp portraits that are gummed and perforated, and being the exact size of ordinary U. S. postage stamps, photographers and others will find them an interesting novelty in advertising their business, as they can be mounted on business and visiting cards, letter-heads, etc.

We also make a size four times larger than the stamp pictures. Send for samples and prices, which will be furnished on application.

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It is the most unique, elegant and attractive Camera ever produced. Suitable for ladies or gentlemen. Can be used as a hand camera or on a tripod.

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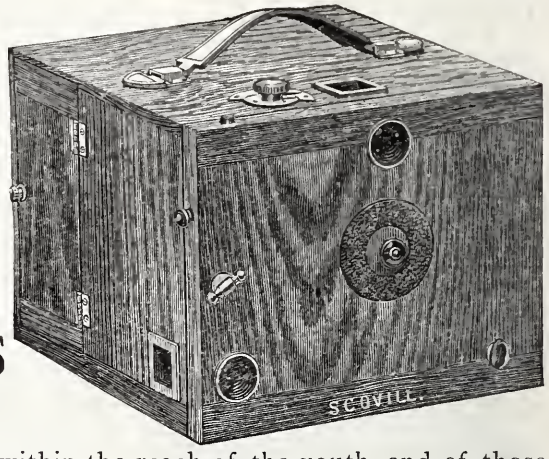
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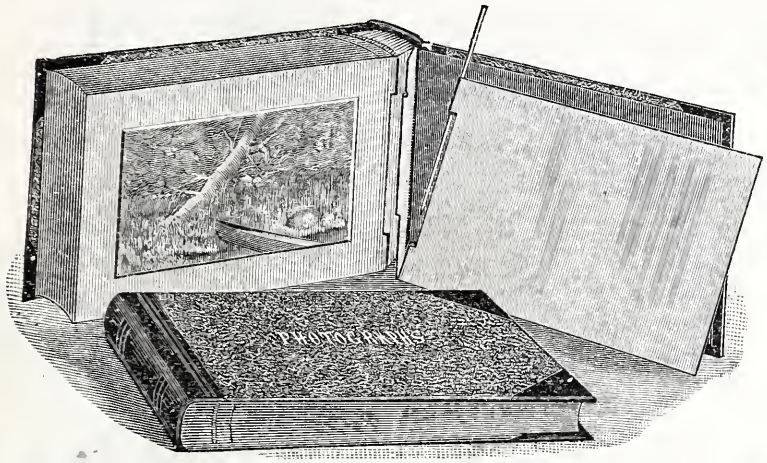
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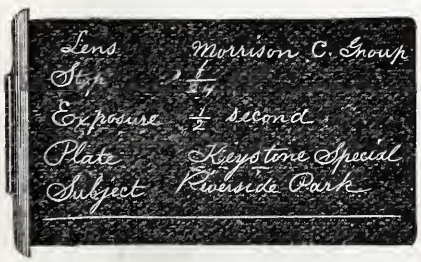
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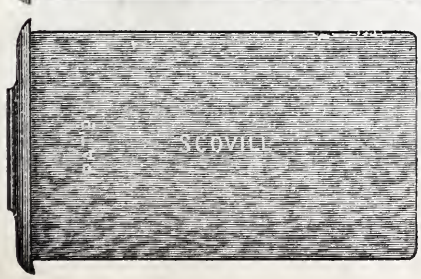
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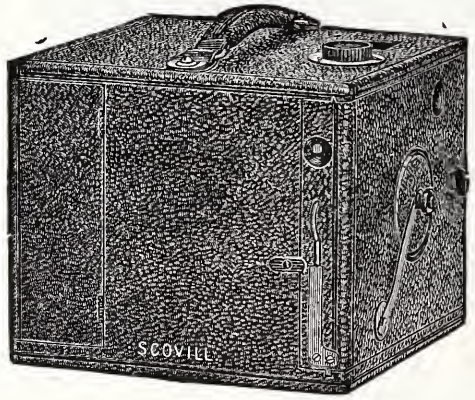
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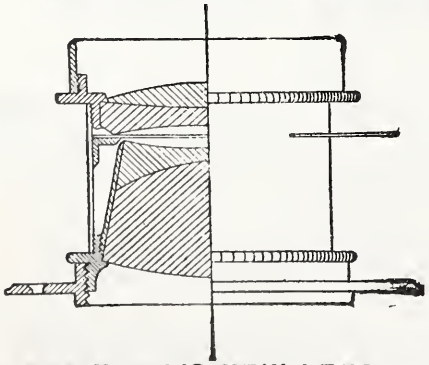
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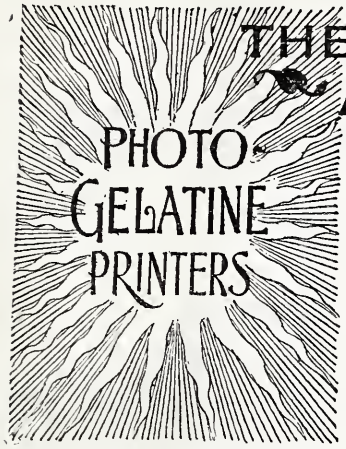
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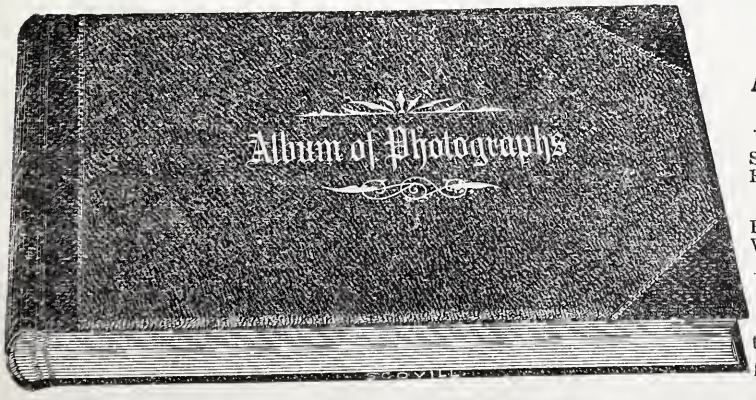
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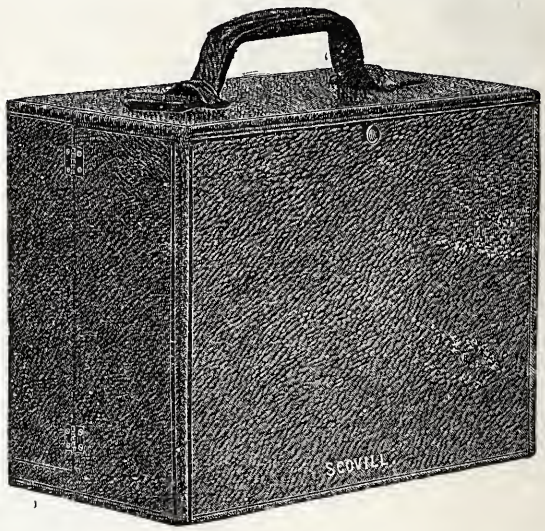
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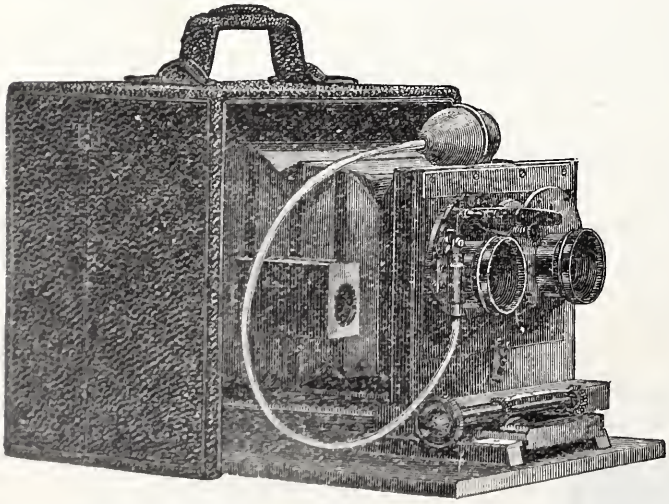
It is commonly known that of all pictures, those which are arranged to give the stereoscopic effect when viewed in a stereoscope, convey the true impression of perspective and solidity. It seems strange, indeed, that of the myriads of instantaneous pictures made, so few are taken with reference to their future use in connection with the stereoscope, *for it is only by that means that the idea of perspective and solidity can be conveyed.* We can only assign as the reason the present almost universal use of hand cameras, and that none of them have, up to this time, been arranged for stereoscopic pictures.

There is a much over-worked phrase—"the long felt want," but we think that just that, literally, will be met by the new hand camera which the American Optical Company have just finished.

The first illustration shows one of these cameras closed, and you will observe there is no external opening for finder, lens or anything to indicate that the leather-covered case contains the appliances which go to make up an instantaneous camera.

This camera measures eight inches high, nine inches long and five inches wide; its weight is about five pounds. It has a screw plate underneath, so that it may be used with a tripod. It has a door in the back of the case, and through that opening the image thrown by the lenses may be seen on the ground-glass focusing screen.

The second illustration shows the appearance of the camera when open. The pair of Rapid Rectilinear Lenses is fitted with a triplex stereoscopic shutter with pneumatic release, made by the Prosch Manufacturing Company.



The camera is furnished with a focusing scale and a reversible finder. Either half of the stereo. negatives when cut in two are of a size suitable for making lantern slides from.

This camera may also be used to take a single picture of the size of the ground-glass focusing screen (5x7 inches), either vertical or horizontal. In the former case the reversible finder comes into use. The septum which divides the camera inside is arranged so that it may be easily taken out, the stereo. lenses are mounted on a removable front, and an extra front is furnished on which may be placed any lens of not over seven and a half inches equivalent focus.

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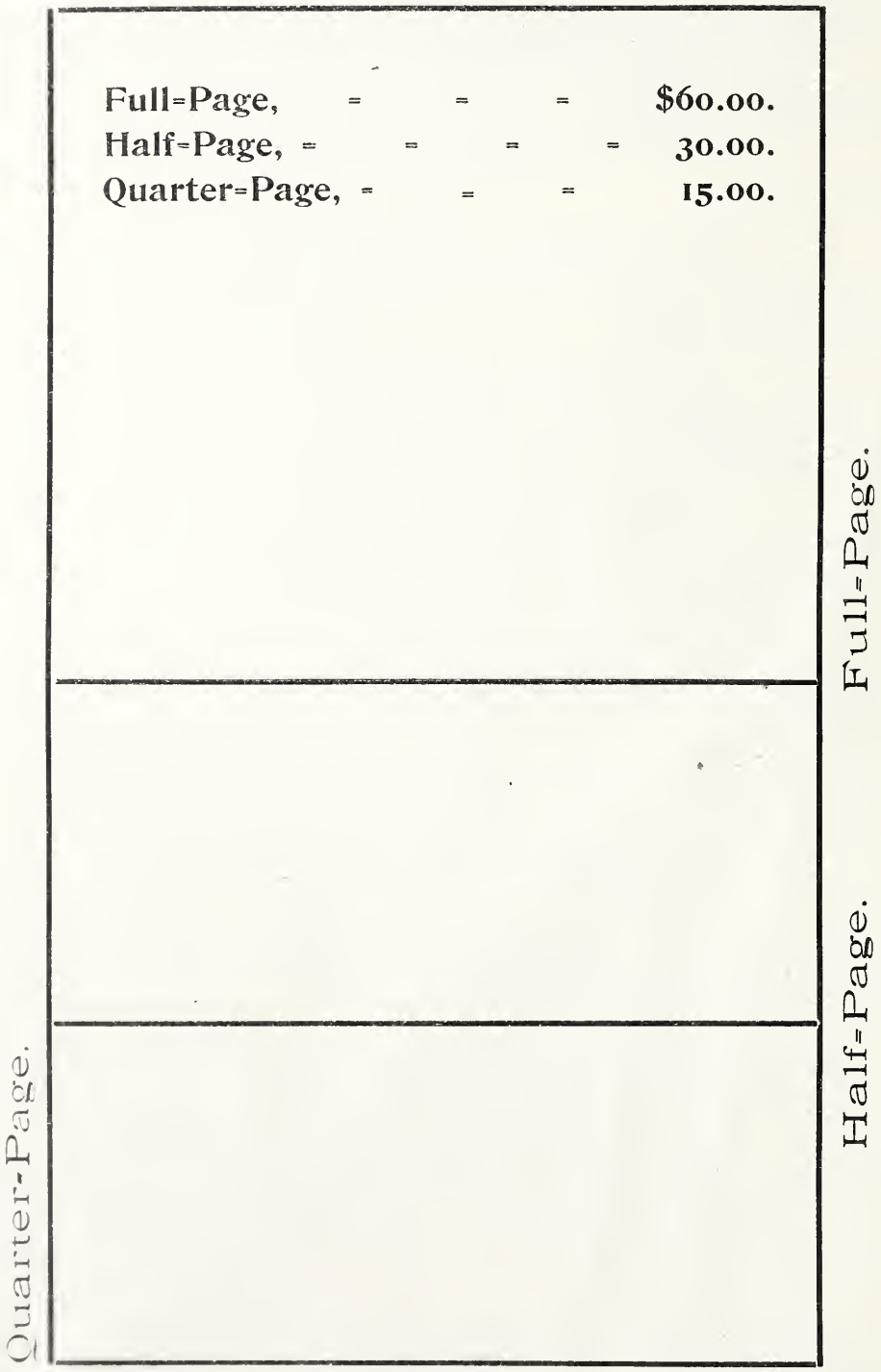
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R. Eickemeyer, Jr., Photo.

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HAYING.

THE PHOTOGRAPHIC TIMES.

VOL. XXII. JUNE 24, 1892. No. 562.

HAYING.

THOUGH it is a little early for haying, in this part of the country, we nevertheless think that our readers will welcome the accompanying picture with that title, by Mr. Rudolph Eickemeyer, Jr. The negative was made last season by Mr. Eickemeyer, and is a characteristic specimen of his artistic work combining, as it does, in an attractive picture, figures and a landscape. Rarely do we see a photograph in which the landscape is so prominent as this one, with figures which so naturally conform to the general composition, and at the same time, make an important part of the picture. Both the men appear utterly unconscious of the fact that they are being photographed; they are entirely natural. Perhaps they were unconscious of the photographer's presence. In any event the picture is an entirely satisfactory one.

FORMULAS AND PROCESSES.

DEVELOPER FOR BROMIDE PAPER.

A.

Water	500 c.c.
Sodium sulphite	45 grammes
Eikonogen	3 grammes

B.

Water	500 c.c.
Potassium carbonate	60 grammes

For use two volumes of A and one volume of B. If the developer is too energetic, dilute with a little water.

The old solution should be kept in a well-corked vial.

L. Ottenheim.

GLUE IMPERVIOUS TO WATER.

Let soak strong glue in water until softened. Before its primitive form be altered, remove it from the water and dissolve it in linseed oil at a very low temperature until it takes as a jelly. This paste can be used to unite every kind of substance. Besides its strength and hardness, it has the advantage to resist the action of water.

Castor-oil jelly is prepared in a similar manner with soft gelatine for medical use.

TONING AFTER FIXING.

Capt. Pizzeghelli gives the following formula of a compound by means of which prints can be toned after fixing:

Ammonium sulphocyanide	300 parts
Gold chloride	3 parts
Potassium hydrate	3 parts
Water	1000 parts

This bath is energetic, gives blue-black tones and keeps.

STAINED NEGATIVES.

Discolored negatives from not having been thoroughly washed after intensification with mercury can be restored by immersing them for a certain period in a solution of

Water	1000 parts
Sodium sulphite	250 parts
Hydrochloric acid	70 parts

to which should be added an equal volume of a saturated solution of sodium hyposulphite.

A RELIABLE TONING BATH.

Dissolve 15 grains of gold terchloride in 10 ounces of boiling water and add 2 drams of ordinary whiting (chalk). When cold filter this solution and wash the filter by pouring in it 5 ounces of water. This forms the stock solution.

For use dissolve in 30 ounces of water 15 grains of *fused* acetate of sodium and 40 grains of tungstate of sodium, then add 4 ounces of the gold solution.

PYROGALLOL DEVELOPER.

The following stock solutions are prepared for compounding the developer mostly employed by

Copyrighted.

New York photographers for time-exposures in studio :

A.

Sodium sulphite, cryst.....	6 ounces
Water (warm).....	32 ounces
When dissolved add in order	
Pyrogallol.....	1 ounce
Sulphuric acid.....	½ dram
Potassium bromide.....	½ dram

B.

Sodium carbonate, cryst.....	6 ounces
Water.....	32 ounces

For use equal volumes of A and B and 4 volumes of water.

ANIMATED IMAGES.

Take two negatives from the same person but in two different positions ; for example, a woman taking water at a pump ; in the first picture the arm will be raised, then lowered in the second, and the two attitudes of the woman will be in relation with the two positions of the arm of the pump. Of these two negatives, print two proofs and paste the two images (toned, fixed, etc.) on the two opposite surfaces of the same cardboard. Tie a string on each side of the cardboard, by twisting it between the fingers, you will cause the cardboard to revolve rapidly, and you will obtain the sensation of the motion of a person pumping water.

This can be applied to any other subject.—*Photo. Gazette.*

TO PREVENT BLISTERS ON ALBUMEN PAPER.

Add to the toning bath one-tenth of its volume of alcohol.—*Arnold.*

TONING BATHS FOR OBERNETTER PAPER.

1. *For Blue-black Tones.*

A.

Water.....	1000
Aceto-tungstate of soda.....	30

B.

Water.....	1000
Chloride of gold.....	2

Before use, mix by equal volumes.

By replacing A by the following solution, the tones are blacker:

2. *For Purple Tones.*

A.

Water.....	1000
Borax.....	20
Sulphocyanate of ammonium.....	100

B.

Water.....	1000
Chloride of gold (brown).....	2

For use, 2 volumes of A and 1 volume of B.

Replacing A by the following solution, the tones are warmer:

Water.....	1000
Aceto-tungstate of soda.....	20
Sulphocyanate of ammonium.....	10
Hyposulphite of soda.....	1

These baths work equally well with collodio-silver chloride and albumen paper.

Dr. Pestour.

PREPARATION OF ACETO-TUNGSTATE OF SODA.

The aceto-tungstate of soda is not a defined salt, but a mixture prepared by mixing the equivalent of two salts. It is very soluble. It crystallizes in prisms which are deliquescent.

To prepare it dissolve in hot water 14 parts of sodium acetate *pure* with 41 parts of sodium tungstate and crystallize.

The potassium salt is prepared by mixing 16 parts of acetate of potassium and 43 parts of tungstate of potassium.

Used to prepare toning solution the former give purple tones and the latter purple-black tones. (P. C. D.)

HYDRO CUM EIKO DEVELOPER.

Mr. Deschamps, a very skilful French amateur, communicates the following developer, which he states gives excellent results for time-exposures :

A.

Eikonogen.....	5 grains
Hydroquinone.....	2 grains
Potassium bromide.....	0.5 grains
Potassium sulphite.....	25 grains
Water.....	1 ounce

B.

Potassium carbonate.....	10 grains
Potassium hydrate.....	3 grains
Water.....	1 ounce

Equal volumes. Dilute when the image appears too rapidly, etc.

SNAP SHOTS.

THE common practice among the beginner-amateur photographers is to buy a hand camera—a detective as it is sometimes called—and then to take instantanés from any subject, which they develop in a mechanical manner with a ready-made developer, hydroquinone or eikonogen This is commencing to learn photography by the very end, and the most difficult part. The results can be imagined.

Photography is not the easy art it appears to be. Leaving aside an artistic education, it requires the knowledge experimentally, at least, of the action of the colored rays of light to determine the time of exposure, and the behavior of each of the con-

stituents of the developing solution to conduct the development. Now, to learn these two important operations—the exposure and the development, which form the basis of the art—one, in his first essays, should discard snap-shot exposures and work only by time-exposures. Moreover, instantanés are, with some exceptions, of course, deficient in details in the shadows and colored parts of the image; perfect pictures can only be obtained by time-exposures and using orthochromatic photo-films.

It is not necessary for time-exposures to have a special apparatus fixed on a tripod. It suffices to place one's self in a comfortable position in order to hold the camera with a steady hand; for example, kneeling and holding the camera on one's knee, or placing it on a fence and resting the body against the same; even in a standing position and keeping the camera firm against one's self, one can, without moving, expose for one or two seconds, which is generally sufficient with a good lens, by holding the breath during that period.

It is not our purpose to give instructions on time-exposures in this paper, it being written solely to give some advices on snap-shots or rapid exposures.

While making the experiments above advised, one will have observed,

1st. That there should be a certain length of exposure-time to impress the photo-film sufficiently to obtain a developable image in all its parts.

2d. That the exposure-time should be in proportion more lengthened when the subject presents great contrasts than when it is normally lighted, that is, without much opposition between the lights and shades, or the colored rays from the subject.

3d. That it is always advantageous to over-expose, and to rely on the development to obtain the effects desired.

Now, as the photo-film is so much the more rapidly impressed as the diaphragm of the lens is the largest, or as the exposure-time is the longest, we have at our disposal a ready means to control in a certain measure the action of light when making instantanés.

If without changing the speed of the shutter we use smaller diaphragms, the image in the camera becomes less luminous, which corresponds to shorten the exposure-time and obtain better definitions, or, in other words, an image sharper at all the planes. On the contrary, if without changing the diaphragm we increase the speed of the shutter, we diminish the exposure-time in proportion and *vice versa*.

This being understood, and that the exposure time increase or diminish with the square of the difference between the apertures, let us give some data to guide the beginner.

For an ordinary open landscape, using a lens working with $f/8$, one-twentieth of one second may be considered as the normal exposure; with an aperture $f/11$ it should be one-tenth of a second and one-fifth with an aperture $f/16$.

When there are great oppositions in the foreground of the landscape, heavy foliages for example, the exposure may vary from one-eighth to one-half of one second with $f/8$.

On the seaside the lighting, on account of the reflection from the water, the sand, etc., is much more brilliant than in land, so that with an aperture $f/16$ a picture can be taken in one-twentieth of one second, and less, very often.

A few important points to bear in mind are the following:

1st. The more the subject is distant, the shorter may be the exposure and the larger can be the aperture used.

2d. The deeper the non-actinic color of the objects, the longer should be the exposure. Under wood, it may be extended to many minutes.

3d. There is always an advantage to work with the largest possible diaphram and the shutter at the lowest possible speed. This is obvious.

4th. When in ordinary circumstances one works at very great speed, it is the objects in the light which are photographed, not those of the shadows. Such pictures are consequently harsh, defective. Hence, if the scene is such as a very short exposure-time is a *sine qua non*, a large aperture should be used, the subject placed at the focus and the rest left out of it. This will be more or less blurred it is true, but it is better to let it so, for it will be distinct on the photograph instead of being a black, confused mass, moreover the principal subject will be more brilliant and represented with all its details.

5th. Aperture $f/16$ gives excellent definitions. It is that most generally employed for short exposure-times. A group in the foreground of a landscape cannot be done with a larger aperture. The exposure-time varies from one-half to one second in good light.

As to the development it is evident that whenever a photo-film has been rapidly exposed, the exposure is short in regard to the details in the shadows. Hence the development should be conducted to bring them out before the lights acquire intensity. To that purpose we immerse the plate

in the solution of potassium carbonate and sodium sulphite, then add the pyrogallol by degrees.

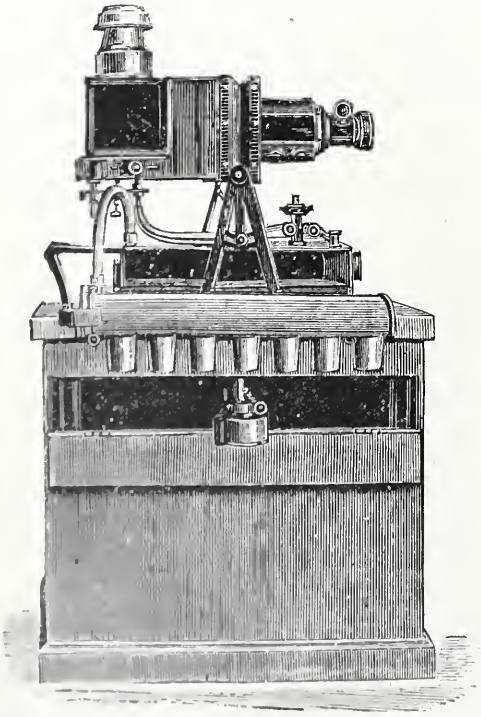
We refrain giving formulas. They are of no use whatever for one who understands the action of the reducing agent, that of the alkali and of the restrainer. Have a safe non-actinic light, use plenty of it to well observe the progress of the development, commence with a normal dose of alkali, about 3 per cent., and little pyrogallol until the details are well defined, then add more of it to push to intensity, a few drops of the restrainer being then sometimes useful. If the details hang back increase the dose of alkali, but as very rapid plates do not admit a larger dose than 4 or 5 per cent. without producing fogging, dilute the developing solution and take a dose of patience.

P. C. Duchochois.

A NEW FORM OF ETHER-OXYGEN LANTERN.

[Read before the Royal Society of Canada.]

THE difficulties commonly incident to the preparation and manipulation of the oxyhydrogen light have led me, after a series of experiments extending over many years, to devise and construct a form of optical lantern which may be quickly and easily operated with the least expense and



danger, and in which compactness is secured, together with an avoidance of excessive weight.

The apparatus has been designated the Ethoxycon, as indicating the use of ether and oxygen. It combines both the lantern proper and the gas generator and storage bag or receiver. In general terms, the generating and storage parts consist of a generator or retort for the production of oxygen gas, a filter or washer, a saturator, a regulator and a storage gas receiver. All of these, together with the lantern proper, are contained in a box or case which measures 10 x 18 x 18 inches. This also serves as a stand for the lantern when in use.

The details of construction and operation are as follows :

The lantern proper, or the optical part of the instrument, consists of the ordinary lens system for enlarging, projecting and focusing the image of the object as illuminated by rays of light passing through a condenser. These parts are all comprised in a small case of wood and metal, in which is placed a 4-inch condenser—this size being ample to cover the aperture of an ordinary lantern-slide 3 inches square. The back case of the lantern is provided with a sliding adjustment to establish the proper focal relations between the lens and the condenser. The spindle upon which the lime is placed is also provided with the usual means for transverse and vertical adjustment and adjustment of the jet relatively to the lime. An important feature consists of means for vertical adjustment of the entire instrument. This is effected by having the body hung on pivots at the summit of two metal triangles. From each pivot there depends an arm carrying at its lower extremity a clamp operated by a thumb screw. This latter passes through and engages upon a short arc opening in each triangle in such a way that the body of the lantern may be adjusted horizontally, or vertically above and below this position within an extreme range of about 30 degs., the position desired being firmly secured by the clamping action of the thumb screws.

The generator consists of an iron or steel tube with a semi-circular cross-section. Into the flat or lower side are inserted a number of copper cups, each of a capacity to contain sufficient mixture to contain the light for about fifteen minutes. The different rates of conduction in the two metals of the retort serve two purposes. The copper being a rapid conductor, brings about a speedy fusion of the chlorate of potash, which quickly gives off gas. The iron, by its slower conductivity, serves to retard the transmission of heat from cup to cup, thereby prevents action taking place in any cup not directly heated, and secures complete control of the whole operation. Each cup is heated in turn by means of a spirit lamp or a small Bunsen burner, as may be desired, the transfer of heat from one to the other being

effected automatically by an attachment which is operated by the receiver when the gas has reached a certain degree of exhaustion.

The washer, saturator and regulator are combined in one piece, measuring 7.5 x 12.5 x 30.5 cm. This is placed directly beneath the body of the lantern between the triangular supports. The central longitudinal section is occupied by the washer. This consists of a tube arranged with fine wire cloth, and filled with a moist filtering substance, which serves to arrest any particles of carbon or other similar impurities which may pass over from the retort. On each side of the washer is a similar tube filled with pine-wood sawdust, which is charged with sulphuric or petrolic ether, as may be desired. The form of saturator is an improvement upon that usually employed, while the construction is such as to avoid all possibility of explosion. Towards one end, and directly over the washer, is a small standpipe with two stop-cocks and a regulator. The latter consists of a rubber diaphragm, upon which rests a lead disk weighing about 136 grammes. The amount of gas passing through from the regulator to the burner is determined by the adjustment of two needle-point valves, one for each gas, and thus the production of a brilliant light is readily secured.

The gas receiver is contained in the case which holds the entire instrument when in transport. It consists of a rubber bag, having a capacity of nearly one foot, the upper part of which is formed of a tin pan working upon two upright metal posts, one of which serves as a tube for the conveyance of gas to and from the receiever. Into the pan there is loosely fitted a second pan, designed to be filled with water in order to establish the necessary pressure. Upon the front edge of the first pan are a number of catches designed to engage a spring and automatically transfer the source of heat from cup to cup as the pan descends during the exhaustion of the contained gas.

To place the lantern in operation the case is located in the desired position and all the movable parts are removed. The loose pan is next filled with water to about two-thirds or three-fourths its capacity and placed in position. The rubber tube supplying gas to the receiver is next attached to its corresponding metal tube and passed through a hole in the cover made for this purpose, the latter being then closed down. Two metal rods projecting from the front of the cover are then drawn out as supports for the retort, and the lantern is placed in position on the top of the case.

Black oxide of manganese (MnO_2) and chloride of potash ($KClo_3$) in the proportions of 1:3 are now thoroughly crushed and mixed. If the crystals of chloride are fine thorough mixing with a spoon will suffice, but if large it will probably be found better and more expeditious to pass the mixture through an ordinary coffee mill. A metal trough of the form and length of the retort is now filled with the mixture, passed into the inverted retort, the whole reversal and the charger or trough withdrawn. In this process each cup will be filled and any excess of material discharged as the trough is drawn out. The head of the retort is next fimly clamped on, the retort is placed in position on its supports, and the lamp adjusted to the first cup on the right. A large rubber tube is now connected with the retort at one end and with the washer at the other, while the small tube leading from the receiver is also attached to the washer. After making certain that all connections are perfectly tight, heat is applied. If sufficient, gas will form in two and one-half minutes, the first indications will be in a slight action of the receiver, followed by an elevation of the regulator to its full height. The pan now rises rapidly, and, under favorable conditions, the light should be on the screen within five minutes from the first application of heat to the retort. When alcohol is used in generating the gas a somewhat longer time must be allowed for.

The distribution of the gas takes place in the following manner: As fast as it generates it passes from the retort to the washer, whence it returns by a smaller tube to the receiver, in which the surplus is stored. From the washer it also enters the standpipe and regulator, which latter determines a uniform pressure in the gas supplied to the jet, thereby securing a steady light. From this point, as regulated by the needle-valves, the gas is led by two separate channels to the point of consumption. One valve transmits pure oxygen directly from the washer. The other causes a certain volume of oxygen to pass downward into one of the saturators, from which it passes into the second, and thence directly to the burner. In its course it becomes supersaturated with ether, and therefore constitutes the substitute for the ordinary hydrogen gas employed where separate gases are used.

The capacity of the retort is such that sufficient gas may be generated to operate the light continuously for about two hours. Two or more retorts will be found of advantage, and by their use continuous service may be secured for any length of time.

The exhausted charges may be speedily removed from the retort by placing the latter on end under

a tap and using a free supply of water. If the latter be heated the operation will be facilitated. If not immediately needed, the retort may then be placed on end with the mouth downward, to thoroughly drain and dry. No accumulation of moisture should be allowed, since it passes into the tubes, clogs the passage of the gas, and tends to produce an unsteady light.

The washing tube should be cleaned out occasionally with fresh water to prevent clogging. The saturator needs only occasional replenishing. With due attention to these directions and the ordinary prudence which must at all times be exercised in the use of highly explosive substances, this lamp is capable of affording a brilliant and satisfactory light, with perfect safety to the operator and a minimum of expense and trouble. The cost of operating the lamp, so far as can be determined from present experience, is about fifteen cents per hour.

The apparatus is patented in Europe and America.

George R. Prouse.

RELATIVE EXPOSURES FOR VARYING PROPORTIONS OF IMAGE TO THE ORIGINAL.

(Photographic Society of Great Britain.)

WHEN an enlarged photograph has to be made either from a negative or print, it is commonly understood that the greater the degree of enlargement, the longer will be the exposure required, but I have generally found only the vaguest ideas to exist as to the amount by which such exposure has to be prolonged. Sometimes, indeed, it is assumed that the exposure will be in direct inverse proportion to the area covered, so that a copy of twice the linear dimensions of the original—covering as it does an area of four times the size—would require an exposure of four times that sufficing for a copy of the same size. This calculation, however, omits to recognize an important factor, and leads to serious error; the actual exposure required in the case mentioned (assuming the same lens and stop to be used), being not four times, but two and a quarter times that of a copy of same size; whilst, when we come to high degrees of enlargement, the error would amount to an indication of nearly four times the exposure actually required.

To find the relative exposure, add one to the number of times that the length of the original is contained in the length of the image, and square the sum. This will give the figure found in the third column of the annexed table.

Proportion of image to original (linear).	Distance of image from lens* in terms of principal focus.	Proportionate exposures.	Exposures proportioned to that required for copying same size.
$\frac{1}{30}$	$1\frac{1}{30}$	1 07	.27
$\frac{1}{20}$	$1\frac{1}{20}$	1.10	.28
$\frac{1}{10}$	$1\frac{1}{10}$	1.21	.3
$\frac{1}{8}$	$1\frac{1}{8}$	1.27	.31
$\frac{1}{6}$	$1\frac{1}{6}$	1.36	.34
$\frac{1}{4}$	$1\frac{1}{4}$	1.56	.39
$\frac{1}{2}$	$1\frac{1}{2}$	2.25	.56
$\frac{3}{4}$	$1\frac{3}{4}$	3.06	.76
1	2	4	1
(same size)			
2	3	9	2.25
3	4	16	4
4	5	25	6.25
5	6	36	9
6	7	49	12.25
7	8	64	16
8	9	81	20.25
9	10	100	25
10	11	121	30.25
11	12	144	36
12	13	169	42.25
13	14	196	49
14	15	225	56.25
15	16	256	64
16	17	289	72.25
17	18	324	81
18	19	361	90.25
19	20	400	100
20	21	441	110.25
21	22	484	121
22	23	529	132.25
23	24	576	144
24	25	625	156.25
25	26	676	169
26	27	729	182.25
27	28	784	196
28	29	841	210.25
29	30	900	225
30	31	961	240.25

As examples: suppose a copy is wanted having twice the linear dimensions of the original. Take the number 2, add 1 to it, and square the sum $3^2 + 9$. Again, if a copy is to be of eight times the linear dimensions of the original; take the number 8, add 1, and square the sum, $9^2 = 81$. Copies respectively twice and eight times the size (linear) of the original, will thus require relative exposures of 8 and 91, *i.e.*, the latter will require nine times the exposure of the former.

It is convenient to have a practical standard for unity. An image of the same size as the original is a familiar case, and serves as such standard. By dividing the figures in the third column by four, we get at the figures in the last column, which represent the exposure required for varying degrees of enlargement or reduction, compared with the exposure for a copy of the same size.

The table is carried up to enlargements of thirty

*With a double lens it is usually sufficient to measure from the position of the diaphragm plate.

diameters; that is about the amount required for enlarging a small carte de visite to life size.

The exposures required in reductions do not vary at all to the same extent that they do in enlargements. It has therefore not been thought necessary to fill in the steps between the images of $\frac{1}{10}$ and $\frac{1}{20}$, and between $\frac{1}{20}$ and $\frac{1}{30}$ of the size of the original. Beyond $\frac{1}{30}$ there is scarcely any perceptible difference in the exposure until disturbance comes in from another cause; a considerable distance of illuminated atmosphere (haze or fog) intervening.

The figures in the second column will also serve as a table for distances from the lens to the plate and to the original; all that is necessary being to multiply by the principal focus of the lens in use. In the case of enlargements the figures less than 2 must be multiplied to get the distance from the original to the lens, and the figures greater than 2 for the distance from lens to image. For reductions, the figures less than 2, multiplied by the principal focus of the lens yield the distance from lens to plate; and the figures higher than 2 similarly multiplied give the distance of original from lens.

W. E. Debenham.

PARADOXES OF ART, SCIENCE AND PHOTOGRAPHY.

[Camera Club Conference.]

"Stick to nature, my boy!" is an admonition often heard among artists, yet it is most true that, beyond a certain point, the closer the imitation is to nature the further it is from art.

Art is not so much a matter of fact as of impression; even realists admit this. Their objections to what is called impressionism is that the impressionists seldom say anything worth saying, and sometimes nothing at all, leaving a shrewd suspicion that they have nothing to say, and glory only in having no mission except to upset the experience and practice of centuries.

No possible amount of scientific truth will, in itself, make a picture. Something more is required. The truth that is wanted is artistic truth—quite a different thing. Artistic truth is a conventional representation that looks like truth when we have been educated up to accepting it as a substitute for truth. The North American Indian did not understand a portrait less than life size, or a profile with one eye only; he was not educated up to the convention.

Of late years there has been a great demand for truth in art, whatever that dark saying may mean. We have been impressed by the literalists to be faithful to nature. To quote Mr. Oscar Wylde, "They call upon Shakespeare—they always do—and quote that hackneyed passage about Art holding the mirror up to Nature, forgetting that this unfortunate aphorism is deliberately said by Hamlet in order to convince the bystanders of his absolute insanity on all art matters," reducing genius to the position of a looking-glass. On the other hand, it is sometimes said, perhaps jokingly—for we should not take Mr. Brett or Mr. Pennell too seriously—that photography cannot be art because it has no capacity for lying. Although the saying is wrong as regards our art, this is putting the semblance of a great truth in a coarse way. In other and more polite words, no method can be an adequate means to an artistic end that will not adapt itself to the will of the artist. The reason is this, if it can be reduced to reason. Admit that all art must be based on nature; but nature is not art, and art, not being nature, cannot fail to be, more or less, conventional. This is one of those delightful contradictories that make the study of art an intellectual occupation. Men naturally turn to nature. We have evidence of this from prehistoric times. The ornament of all time, of all nations, with scarcely an exception, has been based on nature—the Greeks and Moors are the important exceptions—yet the ornament that approached nearest to exact imitation of nature has always been the most debased and worst. It is the lowest intellects that take the most delight in deceptive imitation. Mr. Lewis F. Day puts this very admirably in one of his recent publications: "Those who profess to follow Nature," he says, "seem sometimes rather to be dragging her in the dust. There is a wider view of nature, which includes human nature, and that selective and idealizing instinct which is natural to man. It is a long way from being yet proved that the naturalistic designer is more 'true to nature' than another. It is one thing to study nature, and another to pretend that studies are works of art. In no branch of design has it ever been held by the masters that nature was enough. It is only the very callow student who opens his mouth to swallow all nature, whole; the older bird knows better."

It is clear, then, that a method that will not admit of the modifications of the artist cannot be an art, and therefore is photography in a parlous state if we cannot prove that it is endowed with possibilities of untruth. But they who, looking, perhaps, only at their own limited experiments, say photography cannot lie, take a very narrow view and greatly underrate the capabilities of the art. All

arts have their limits, and I admit that the limits of photography are rather narrow; but, in good hands, it can be made to lie like a Trojan. However much truth may be desirable in the abstract, to the artist there is no merit in a process that can not be made to say the thing that is not.

Here I am bound to admit a considerable weakness in my argument. We are told by a writer in a popular new magazine, edited by a member of our Club, that it is "always the best policy to tell the truth—unless, of course, you are an exceptionally good liar!" This is, indeed, a misfortune, for there is not, I am ashamed to say, very great scope for sparkling unveracity in our art. That is to say, we cannot produce brilliant falsifications, such as the painter may indulge in. One man may steal a horse, while another may not look over a hedge. A painter may unblushingly present us with an angel with wings that won't work, while a photographer is laughed at, very properly, if he gives us anything nearer an angelic form than that of a spook raised by a medium.

It must be confessed that it takes considerable skill to produce the best kind of lies. It is in the hands of first-class photographers only—and perhaps the indifferent ones—that photography can lie. With the first, possibly, graciously; with the latter, brutally. The photographers of only average attainments, and such as we should get turned out in quantities by an artless Institute, seldom get beyond the plain, naked, uninteresting truth. Yet I think that many will agree with me that the very good and the very bad are much more interesting than the mediocre. That the best are interesting is clear; that the worst are often the cause of a good laugh is the experience of all; it is only the middling good that induce indifference.

There can be little doubt that, in this respect, and looking at it from this point of view, painting is a much greater art than photography; but what I am concerned to prove is that, although photography is only an humble liar, yet it is not the guileless innocent that some people suppose, and has a capacity for lying sufficient to enable it to worthily enroll its name among the noble arts. Nay, is it not the greater for its humility? Photography gives us the means of a nearer imitation of nature than any other art, yet has sufficient elasticity to show the directing mind, and therefore is the most perfect art of all. If we must have paradoxes, let us carry them to the bitter end.

"Let us have truth," says the conscientious writer who knows not what truth is. What should we get in art if we could capture it? We should have a representation of nature as we see it in a mirror, colors and all, and should tire of it as soon as the novelty wore off. The worst thing that could happen to photography as an art would be the discovery of a process giving the colors of nature—the one impossible thing in nature, I hope and believe. Its one great deviation from faultless virtue is, as I have endeavored to show, that it is more truthful than painting.

A writer innocent of the resources of the art, and wishing to depreciate it, makes a point of the photographer having no control over the action of the developer so as to produce the variation from nature he desires. I can only reply that among my own pictures there is scarcely one that does not owe a good deal of any merit it may have to control of the developer. The possibilities of control were greater, perhaps, in the collodion process than the gelatine, but we are speaking of the capabilities of photography, not of any particular process. The scientist may prove, beyond any possibility of doubt, that the relative values cannot be altered in development, but the photographer knows that variation in development varies the appearance of his results, and that should be quite enough for him. It is so difficult, and yet so tempting, to "find out what cannot be done, and then to go and do it!"

H. P. Robinson.

(*To be continued.*)

ON THE ACTION OF LIGHT AND HEAT ON THE HALOID SILVER SALTS.

(Journal of the London Camera Club.)

IN this paper the author gives a *résumé* of some experiments he has made on the action of heat upon the haloid salts of silver; these compounds were precipitated from water and alcohol, the aqueous solutions being both hot and cold at the time of precipitation. In all cases the haloid salt was, after precipitation, collected in a filter and washed with distilled water until free from soluble salts and then divided; one portion was used for covering small pieces of glass, the other portion was emulsified, as well as possible, in a solution of gelatine, and likewise used for coating glass plates of suitable size. These plates were dried in the dark over sulphuric acid and then heated in the dark-room to the desired temperature. After heating the plates, each set was exposed at the same time to weak diffused light and then developed together.

The results are shown in the annexed table:

He considers that the photographic decomposition produced by heat and light are very similar. He points out that some haloid salts are more sensitive to heat than others, but that after a certain definite amount of heat has been absorbed a heat reversal is obtained; and whatever may be the cause, whether it be the bromide first liberated by gradual increasing heat again combining or otherwise, the plate is, as far as the developer is concerned, the same as before being heated, this action being exactly similar to the reversal of image, caused by over-exposure to light.

Dr. J. J. Acworth.

SILVER AS A DETECTIVE AGENT.

LAST summer I had 80 ounces of silver bath sunning in the back yard. One of my neighbors had a barefoot boy that had not been trained for the ministry. On going for the bath I found to my horror that every drop had leaked out; yes, actually leaked out at the top.

I confronted the barefoot boy with the empty bottle. He had never seen a bottle like it before. Even his mother knew positively her boy had not been out of their own yard that morning. But I thought I detected a shade of hesitation passing

	Precipitated from	Not heated.	Heated to 50° C.	Heated to 100° C.	Heated to 160° C.
Silver Iodide.	*Cold Water.*				
	Without gelatine	No image; fog	No image; fog....	No image; increased fog....	No image; increased fog.
	With gelatine...	Weak image..	Max. sensitiveness	Fog begins.....	Increased fog.
	Hot Water.				
	Without gelatine	Faint image...	Faint image.....	Faint image and some fog.....	Faint image and increased fog.
	With gelatine...	Weak image..	Similar to result not heated.....	Max. sensitiveness	Fog.
	Cold Alcohol.				
	Without gelatine	Weak image..	Increase of sensitiveness.....	Max. sensitiveness	Developer has no action.
	With gelatine...	Weak image..	" "	" "	Fog.
Silver Bromide.	*Cold Water.*				
	Without gelatine	Normal image.	Max. sensitiveness	Loss of sensitiveness, and fog begins.....	No image; developer has no action.
	With gelatine...	Normal image.	Increased sensitiveness.....	" "	Very weak image, and very little fog. Heated to 200° C. gave no image. Developer has no action. Reversal.
	Hot Water.				
	Without gelatine	Fog.....	....	.....	.....
	With gelatine...	Fog.....	.....	.....	No image and very little fog. At 200° C. no image, and developer has no action. Reversal.
	Cold Alcohol.				
	Without gelatine	Fog.....	.....	.....	.....
	With gelatine...	Normal image.	Slight increase of sensitiveness....	Max. sensitiveness	Very weak image; no fog or trifling discoloration. At 200° C. no image at all, and developer has no action.
Silver Chloride.	*Cold and Hot Water.*				
	With and without gelatine.....	Normal image.	Max. sensitiveness	Fog.....	Increased fog.
	Cold Alcohol.				
	Without gelatine	Normal image.	Max. sensitiveness	Fog begins.....	Increased fog.
	With gelatine...	Normal image.	Increased sensitiveness.....	Max. sensitiveness	Loss of sensitiveness, and pinky-brown fog.

THE methods of printing in greasy ink are now simple and perfect. Mr. Trulat has therefore well chosen the moment of publishing his treatise of "Photographiques Impressions." It will certainly induce the amateurs to print their photographs by this process. Moreover, every one who will follow the indications given in this little treatise, will obtain without difficulty very good and durable impressions. Published by Gauthier-Villars et fils. Paris, 1892.

over the boy's feet. So I awaited developments.

Well, by noon the feet were over-printed. The boy had washed them with soap and water, and then tried to tone them with sand, but had neglected to properly fix them, so they were still a few shades too dark.

The old gentleman, after paying me ten dollars for the damage done, held a short interview with the said boy in the wood shed. It was reported on good authority that there were blue streaks considerably above the black spots already formed.

J. R. Swain.

Notes and News.

J. A. H. Parsons, a well-known photographer of Wheeling, W. Va., is dead.

Wm. F. Donnelly, a photographer of New Haven, Conn., was recently damaged by fire to the amount of $2,500, which was partially covered by insurance.

Crump Bros., dealers in photographic supplies, at Louisville, Ky., have dissolved partnership.

A. E. Dickerman, a photographer of Pueblo, Col., has sold out.

Mat. Matson, the photographer of Red Jacket, Mich., is reported removed to Astoria, Ore.

J. E. Culligan, Union Springs, N. Y., recently sustained a loss in his gallery by fire.

N. B. Lawson, photographer of Muskegon, Mich., is reported to have sold out.

P. S. Ryder, of Syracuse, was recently damaged by fire. No particulars are given.

Eli Miller, photographer of Rockford, O., has sold out.

F. A. Kroneberger, photographer of Danville, Va., sold out to W. E. Entsler.

The Camera Saves a Life.—The dead body of a man was found near the outskirts of a wood, and appearances indicated that he had been the victim of foul play. An acquaintance of his had been arrested on suspicion, and a vulcanite matchbox, believed to belong to the accused—an assertion which, however, he denied—seemed to strengthen the case against him.

The box was then subjected to careful examination. It was certainly the worse for wear, for its lid was covered with innumerable scratches. Amid these markings it was thought that there were traces of a name, but what that name was it was quite impossible to guess.

Dr. Jeserich now took the matter in hand, and rubbed the box with a fine impalpable powder which insinuated itself into every crevice. He next photographed the box while a strong sidelight was thrown upon its surface so as to show up every depression, when the name of its owner stood plainly revealed. This was not that of the prisoner, but belonged to a man who had dropped the box near the spot where it was found many weeks before the suspected crime had been committed. The accused was at once released.—*Chamber's Journal.*

Aluminium Lights. By A. M. Villon. (*Bull. Soc. Franc. Photo.* [2], 8, 133.)—Aluminium burns with great intensity in flames fed with oxygen gas. The following mixtures are said to give good flames:

1.

Potassium chloride	20 parts
Aluminium in powder	8 parts
Sugar	2 parts

2.

Potassium chloride	25 parts
Potassium nitrate	5 parts
Antimony sulphide	4 parts
Aluminium In powder	10 parts

These mixtures are dangerous. It is suggested that the best means of burning the aluminium is to blow the powder through a flame fed with oxygen gas, and the following mixture is suggested for that purpose:

Aluminium in powder	100 parts
Lycopodium	25 parts
Ammonium nitrate	5 parts

The light may be colored if necessary by the addition of strontium, barium or sodium salts.

On Light and Direct Enlargements, By Captain Abney, C.B. According to the author the variations in the intensity of the sunlight is shown in the following table:

If it were overhead it would be about	5,600 candles
30 deg. above the horizon it is	4,700 "
20 deg. " "	3,300 "
10 deg. " "	2,000 "
8 deg. 30 min. " "	1,400 "
Just before sunset it is	140 "

But the photographic intensity varies according to the following table:

Overhead it would be	120,000 candles
At 30 deg. " "	72,000 "
At 20 deg. " "	42,000 "
At 10 deg. " "	9,000 "
At 8 deg. 30 min. "	5,600 "
At sunset " " about	1·7 "

The photographic value therefore diminishes much more rapidly than the optical value, and when close to sunset it is almost nothing.

The author has found that an exposure of fifty to sixty seconds is enough to make a platinotype print in direct sunlight, that is to say, a light of 120,000 candles at one foot distance will take one minute to give a print, while a gas light of say 100 candles near the negative would take twenty hours to obtain a print by. From further investigations that author shows that one grain of magnesium burnt was photographically equal to an exposure of 23.1 standard candles burning on minute; and he states that to obtain a print with magnesium it will be necessary to burn 4 960 grains one foot away from the negative. He further states that practically sunlight and the arc electric light are alone available for printing purposes. He then describes the arrangement that he used for making enlargements. The reader is referred to the original paper for details of the arrangement.—*Journal of the London Camera Club.*

Masrium, a new element.—The mineral containing the new substance was discovered in 1890 by Johnson Pacha in the bed of an old river in Upper Egypt, long since dried up, but of the former existence of which there are records dating back some 6000 years. Indeed, the name by which it is known in the neighborhood is "Bahr-bela-Mā," or "river without water." Here and there in the track of the old watercourse are small lakes whose water is of considerable repute for its medicinal value. Specimens of the mineral were sent by Johnson Pacha to the Kedival Laboratory at Cairo, where it was examined by Messrs. H. Droop Richmond and Hussein Off, the authors of the paper laid before the Chemical Society. The mineral is found to be a fibrous variety of a mixed aluminium and iron alum containing ferrous, manganous

and cobaltous oxides. In addition, however, to these ordinary constituents, a small quantity of the oxide of another element would appear to be present, having properties entirely different from those of any yet known. This element the discoverers have termed *masrium*, from the Arabic name for Egypt, and the mineral has accordingly received the name of *masrite*. The symbol adopted for masrium is Ms.

The composition of masrite may be expressed by the formula $(Al, Fe)_2O_3$. (Ms, Mn. Co. Fe)O . $4SO_3$. $20H_2O$. The amount of masrium present is very small, averaging only about 0.2 per cent.

From the whole of the analytical data yet obtained, assuming, as the reactions of the salts would indicate, that masrium is a divalent element, the atomic weight would appear to be 228. An element of atomic weight about 225 is, indeed, required to occupy a vacant place in the periodic system in the beryllium-calcium group, and masrium appears likely to be the element in question.—*Abstract from Science.*

Method of Preparing Reversed Negatives. By Balagny. (*Bull. Soc. Franc. Phot.* [2], 8, 21.)—This is a method of making reversed negatives on films, and has the advantage that the work may be done by candle or gaslight. The films are soaked in a 3 per cent. solution of bichromate of potash for five minutes, then placed face downwards on a piece of plate glass and squeegeed. The back is dried by means of a duster and when thoroughly dried the film is removed from the glass and pinned face upwards upon a drawing board. It is then allowed to dry in the dark. In preparing the reversed negative it is advisable to take a film larger than the negative from which it is to be made, and to protect the margins by means of a mat. The film with its mat is placed under the negative in a feeble light—lowered gaslight or a candle—and is then exposed to light in the shade until all the details are completely visible. The examination of the film must be done by candlelight. As soon as the details appear a dark-brown color the film is plunged into running water and washed until the bichromate has been completely removed. The film is then laid on a glass plate face upwards and exposed for from half-a-second to a second to diffused daylight. The first exposure has served to tan the shadows in such a way that the developer is unable to penetrate them.

The high lights on the contrary are permeable and if, after the washing, they be exposed to light, which they had not seen as they were hidden in the printing frame by the deposit on the negative, they alone will develop. The developer that must be used is ferrous oxalate. With other developers the author says that fog is obtained. When the developing is finished, the reversed negative is well washed with water, then fixed in a 6 per cent. solution of potassium cyanide. It is then well washed again and soaked for some time in a solution composed of 100 parts of water to 4 of glycerine. It is then squeegeed down on plate glass, dried by means of a duster, then removed from the plate, pressed under blotting paper, and allowed to dry spontaneously in the air.

Photography in Colors.—M. G. Lippmann, who has been continuing his researches, has communicated further results, which appear in the *Comptes rendus* for April 25th: "In the first communication which I had the honor to make to the Academy on this subject, I stated that the sensitive films that I then employed failed in sensitiveness and isochromatism, and that these defects were the chief obstacle to the general application of the method that I had suggested. Since then I have succeeded in improving the sensitive film, and, although much still remains to be done, the new results are sufficiently encouraging to permit me to place them before the Academy. On the albumen-bromide of silver films rendered orthochromatic by azalin and cyanin I have obtained very brilliant photographs of spectra. All the colors appear at once—even the red—without the interposition of colored screens, and after an exposure varying from five to thirty seconds. On two of these *clichés* it has been remarked that the colors seen by transmission are very plainly complementary to those that are seen by reflection. The theory shows that the complex colors that adorn natural objects ought to be photographed just the same as the simple colors of a spectrum. There was no necessity to verify the fact experimentally. The four *clichés* that I have the honor of submitting to the Academy represent faithfully some objects sufficiently diverse—a stained-glass window of four colors, red, green, blue, yellow; a group of draperies; a plate of oranges, surmounted by a red poppy; a many-colored parrot. These showed that the shape is represented simultaneously with the colors. The draperies and the bird required from five to ten minutes' exposure to the electric light or the sun. The other objects were obtained after many hours of exposure to a diffused light. The green of the foliage, the grey of the stone of a building, are perfectly produced on another *cliché;* the blue of the sky, on the contrary, was represented as indigo. It remains, then, to perfect the orthochromatism of the plate, and to increase considerably its sensibility."

Absorption and the Photography of Colors. By M. Labatut. (*Bull. Soc. Franc. Photo.* [2], 8, 58.) According to the author, when an ordinary sensitive plate is treated by the Lippmann process the impression is obtained very slowly, but if the plate be dyed with a coloring matter having well defined absorption lines, after developing and drying it will be found to show colored bands. That the photographic impression is produced by the absorbed rays is shown by the fact that if a material dyed more strongly with the same coloring matter be held in the path of light, the photographic impression will not be produced. Hence the author says that if in Lippmann's experiment it be proposed to obtain an impression of given radiations, it will be sufficient to choose a sensitive plate colored to absorb this radiation, and no colored screen will be necessary. A Victoria green absorbs the red orange, and a plate dyed with this green and treated as in Lippmann's process showed this color on its external face. In the same way cyanine absorbs the yellow orange and the green, and in a plate dyed with it these same radiations are seen. But when the plates are examined from the back the colors obtained appear to be complementary to those shown on the face. The author concludes that in consequence of the concordance between absorption and the photographic reduction, it is not necessary to use the spectroscope in order to obtain on plates the colors of thin layers. If a beam of white light falls on a colored plate in contact with a mercury mirror there is interference. The absorbed radiations only impress themselves on the sensitized material and the others are transmitted without effect. The result of the impression is a color which is the synthesis of those that would have been obtained by the use of the spectroscope.

Photographic Societies.

THE COLORADO CAMERA CLUB.

THE third reception and lantern exhibition of the Colorado Camera Club was held at their club-rooms on Tuesday evening, June 7th. The large lecture-room was comfortably filled by a most appreciative audience.

Mr. W. H. Jackson, the President, gave a short address, which was followed by a stereopticon exhibition, Professor Hart officiating at the lantern. The following members contributed slides:

George W. Platt, curious rock formations of Colorado; Professor Hart, Indian life in New Mexico and microscopic objects; Miss Sarah Hayes; Arthur Russell; W. E. Perkins; W. L. Pedrick; Milo Cornwall; Frank Hubby; and D. H. Smith, Colorado scenery.

H. S. Bellsmith,
Corresponding Secretary.

The Editorial Table.

Traite Pratique du Developpement, by A. Londe. This book, of which the first edition has been rapidly sold, is illustrated with photo-collographs of great interest. Mr. A. Londe, after having succinctly explained the importance of the development, demonstrates that it does not suffice to give formulas, but that it is more important to explain the rules which should guide the operator whatever be the process employed. This is shown by good examples. Published in Paris by Gauthier-Villars.

Mr. R. E. M. Bain, of St. Louis, sent us two photographs of the flood in East St. Louis, which, aside from their excellence, are interesting, showing the extraordinary great volume of water which covers the whole valley. He also sent a landscape, "Glencove," which is remarkable for the rendering of the foliage, and the various distances of the grounds well in view, and, therefore, relieving each other.

Mr. W. H. Shuey, of Chicago, president of the Douglas-Shuey Co., has sent us two very beautiful 6½ x 8½ instantaneous pictures representing scenes of "The American Derby."

They are both beautifully sharp and well-defined pictures, clean, accurately developed and well printed.

The "First Half-Mile" may be said to be the better of the two, although its companion, "The Finish," deserves great praise.

Mr. Jas. E. Henderlitt, of Festus, Mo., presents a cabinet of a balloon ascending from the Fair Grounds. Balloon, parachute, and the audacious æronaut practising on the trapeze are equally sharp and distinct, as well as the people who gaze starwards from the grounds.

Record of Photographic Patents.

477,012. Camera Shutter. Louis M. Kords, Munich, Germany.

Queries and Answers.

281 A.—How can I produce a matt-surface upon gelatine emulsion paper prints?

281 *Answer.*—It is generally done by squeegeeing the print upon a very finely ground and scrupulously clean glass. An ordinary slate has been proposed in place of the ground glass, but in either case must the surface be free from scratches or indentations, and be well washed with soap and water previous to laying on the print. Gelatine prints squeegeed upon glossy surfaces refuse occasionally to come off; with mat surfaces this occurs oftener. To subject the print to the alum bath either before fixing or when combined with hypo is indispensable.

282 PERKINS.—The direction for toning the Bradfisch improved aristo paper say: "Tone in any good gold bath used for albumen paper." Give me the formula for such a bath and tell, if you please, how must I proceed with the alum bath after toning?

282 *Answer.*—A good bath is the following: Dissolve 500 grains of acetate of soda and 15 grains of pure ter-chloride of gold in 16 ounces of water, and take of this stock solution ½ ounce to 10 ounces of water, or, dissolve 1 grain of ter-chloride of gold and 1 ounce of borax in 32 ounces of water. After toning and before fixing subject the print for a few minutes to the alum bath prescribed by the manufacturers of the paper, but you may dispense with the bi-carbonate of potassium, for it will do no good.

283 D. D. S.—Will you kindly inform me how to avoid fogging when developing with crystallos, and do you know what crystallos is composed of?

283 *Answer.*—We will answer the last question first by telling that crystallos is a mixture of hydrochinon, eikonogen, and sulphite, and an unusually large amount of alkali. On account of the latter the developer is so very apt to produce fog.

284 JENNY F. M. wishes to make enlargements from 4 x 5 negatives up to 11 x 14, not bromide prints, but negatives to be printed from on mat-surface silver or platinum paper. How is it best done?

284 *Answer.*—Make first a diapositive by contact, and from that the enlarged negative. Use a plate of moderate sensitiveness like the Carbutt B. For this class of work the Scovill reducing and enlarging camera is an excellent apparatus, and can hardly be dispensed with.

285 PRINTER.—Red spots occur frequently with the American aristo paper. It seems neither the separate nor the combined toning and fixing bath has any effects upon them. What is their cause?

285 *Answer.*—The paper has been handled with greasy fingers. Soak it for a short time in a very dilute and lukewarm solution of bicarbonate of soda, when the grease may possibly be saponified.

286 LEHNHARDT has photographed highly polished silver ware, but finds a distinct and sharp picture of his skylight impressed upon every piece of the set. Can that be avoided?

286 *Answer.*—Place a light muslin or cheese-cloth screen before the skylight. The time of exposure must be increased, of course.

THE PHOTOGRAPHIC TIMES.

AN ILLUSTRATED WEEKLY JOURNAL DEVOTED TO THE ART, SCIENCE AND ADVANCEMENT OF PHOTOGRAPHY.

Issued every Friday.

W. I. LINCOLN ADAMS, Editor.

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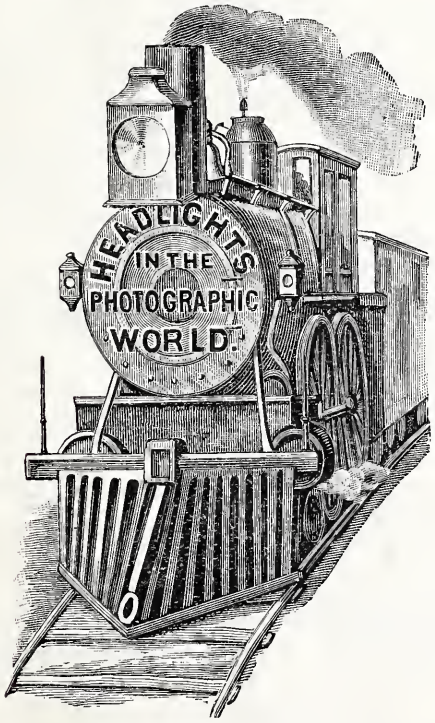
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All literary contributions, correspondence, "Queries," etc., should be addressed to THE EDITOR; all advertising matter to the Publishers,

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423 Broome St., New York, U.S.A.

Commercial Intelligence.

THE "HENRY CLAY" IN ENGLAND.

As announced several weeks ago, Mr. Carbutt took a 5 x 7 Henry Clay camera with him when he sailed for the other side. Shortly after his arrival in England, we received a letter from him, in which he told of the great pleasure the camera had afforded him on his voyage across the Atlantic.

In a letter dated June 1st, from London, Mr. Carbutt writes once more in regard to the camera, as follows:

"Wherever I have shown the 'Henry Clay' camera, it has excited great interest, and called forth the highest praise for its compactness, practicability, and splendid workmanship, notably at the Liverpool Photographic Society, notice of which will be found in the *British Journal*, of Friday, June 3d.

"I showed the camera to Mr. J. Traill Taylor yesterday, and he was very outspoken in its praise. Atkinson, of Liverpool, also, took well to it. From what his son said, and others, on the night of the meeting at the Liverpool Society, and from what I have seen of English cameras, I believe that the Henry Clay will sell very well here.

"The popular size of the camera here, above the 4 x 5, is 4¾ x 6½ plates or films.

"I showed the camera also to Conrad Beck yesterday afternoon. He too could say nothing but the highest praise for it. I shall exhibit it at the London Provincial to-morrow evening together with the panorama photographs from negatives on my films. Such immense prints from celluloid negatives rather staggers them here."

TO PHOTOGRAPHIC MERCHANTS.—We have received a full assortment of Bradfisch & Pierce's Aristotype Paper, which is in great demand. We should be very glad to receive your valued orders for this paper, which we think will give you entire satisfaction. You can always rely upon receiving from us a fresh supply of Hopkins' Omega Paper, of which we always keep a full stock. We are just in receipt of a full assortment of Three Crown Pense Dresden Ex. Brilliant Albumenized Paper of the following sizes: 18 x 22; 20½ x 24½; 22 x 36; 36 x 40. This is carefully made and will give you less trouble than any other brand in the market. We have en route THREE CROWN, New Rose and White, for all of which we respectfully solicit your orders.

Very truly yours,
THE SCOVILL & ADAMS CO.

June 20th, 1892.

DISSOLUTION OF PARTNERSHIP.—The co-partnership hitherto existing between Minott M. Govan and Samuel C. Crampton, under the firm name of Govan & Crampton, has been dissolved by mutual consent.

All accounts due said firm will be collected by Minott M. Govan, who assumes all liabilities.

The business will be continued by MINOTT M. GOVAN at No. 5 Clinton Place, New York.

"My brother has an ———— $20 lens, but it does not do so good work as my $4.50 'Waterbury,'" writes an amateur.

Business Notices.

FOR SALE.—A new 4¼ x 6½ Mogey Rapid Scenograph Lens; an excellent lens for landscapes, instantaneous views and groups. Regular price $20; will sell for $15 cash. Address "SCENOGRAPH,"
Care THE PHOTOGRAPHIC TIMES Office.

RAPID RECTILINEAR LENSES AT COST.—4 x 5, $5; 5x7, $12; 5x8, $7; 6½x8½, $8; 8x10, $12; 10x12, $18; 11x14, $24. Write for price list.
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BACK NUMBERS OF SUN AND SHADE, including Nos. 3, 10, 11 and later issues, in perfect condition, 25 cents each. Regular price is 40 cents, and the earlier numbers are at a premium. THE PHOTOGRAPHIC TIMES PUBLISHING ASSOCIATION.

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THREE RARE OLD DALLMEYERS TO SELL.

One 3¼ x 4¼ Rapid Rect.....$21 00
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The Porcelain Picture. Towler, New York, 1865. Paper, pp. 47..... 25
Orr's Circle of the Sciences, Vol. VII. (contains "The Photographic Art," by James Martin, 204 pp.). London, R. Griffin & Co., 1860. Cloth, 12mo, pp. 574..... 50
pp. 113, paper..... 10

Odd Numbers and Volumes of Photographic Journals.

Seely's American Journal of Photography, Vol. VI., Nos. 1–19 (July, 1863, to April, 1864).

Humphrey's Journal, Vol. XV., 1863, Nos. 10, 15, 16, 20, 21, 22, 23, 24.

Photographische Monatshefte, Nos. 7–19 (December, 1862, to December, 1863).

The Photographic Times, Vols. III., VI., IX., XI. and XIV. Bound in red cloth, $1 each; regular price, $3.

American Journal of Photography (McCollin), Vol. V., No. 2; Vol. XI. (1890), complete, except Nos. 1 and 4. Vol. XII., except January, February and June.

Bulletin de la Société Française de Photographie. 2d series. Vol. VII., Nos. 1–6.

Anthony's Bulletin, Vol. XIX. (1888), complete, Nos. 1–24.

The Practical Photographer (English), Vols. I. and II. (except No. 18), 1890, 1891.

A few *very* odd numbers of Photographic Notes, Daguerreian Journal, Photographic and Fine Art Journal, Magic Lantern Journal, Photographic Herald, etc.

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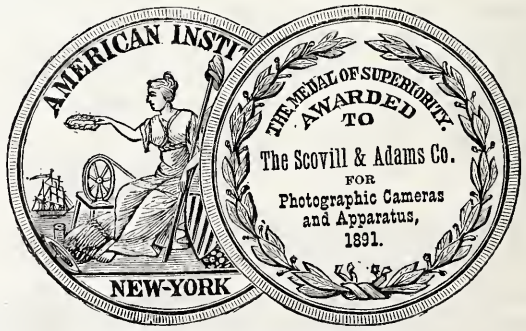
Para-amidophenol (pure)	100 grains
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Water	32 ounces

FOR USE.—Take 1 ounce of the above solution and from 2 to 4 ounces of water, according to the length of exposure.

The stronger the solution the greater the intensity of the resulting negative; the more diluted the solution the greater softness and more detail.

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All contemplating a summer tour should place their orders with dealers early, to avoid the season's rush. Carbutt's Dry Plates and Flexible Films are to be obtained from all dealers in photo materials. Send to factory for reduced Price List and list of brands.

Manufactured by JOHN CARBUTT,

(Pioneer Manufacturer of *Gelatino-Bromide* and *Orthochromatic Plates* in America.)

KEYSTONE DRY PLATE AND FILM WORKS.

WAYNE JUNCTION, PHILADELPHIA.



A full supply kept in stock by

THE SCOVILL & ADAMS COMPANY.

OLD ESTABLISHED

DEPOT and STOCK HOUSE,

PHOTOGRAPHIC MATERIALS AND SUPPLIES

OF ALL KINDS FOR

Professional and Amateur Photographers.

PROMPT ATTENTION GIVEN ALL ORDERS.

LOWEST PRICES, BEST GOODS.

Cameras, Amateur Outfits, Dry-Plates, Card Stock and Chemicals

☞Dark-room for use of customers.

J. N. McDONNALD,

Opp. Union Depot Arcade, 544 Broadway, Albany, N. Y.

CATALOGUE ON APPLICATION.



MENTION PHOTO. TIMES.

BAUSCH & LOMB OPTICAL CO.,

Manufacturers of the Popular American Standard

RAPID UNIVERSAL LENSES,

for Group work in Studios and all outdoor work, and

ALVAN G. CLARK LENSES,

on both of which there has been a decided reduction in prices. The New and Wonderful

ZEISS-ANASTIGMAT LENSES,

of which we are the Sole Manufacturers. In three Series, for Studio, Architecture, Landscape and Copying.

DIAPHRAGM SHUTTER,

which stands without rival.

ROCHESTER, N. Y., P. O. Drawer 1033. NEW YORK CITY, P. O. Box 432.

Send for NEW CATALOGUE, Just out.

Edwards's Special Transparency Plates.

For LANTERN SLIDES, Window Transparencies, and Reproductions in Black-and-White.

These Plates make the most perfect Lantern Slides, either by contact printing by artificial light or by means of the camera from larger or smaller negatives and give, at will, either engraving black or rich warm purple tones; they are also specially suitable for reproductions of line subjects for photo-lithography, when used for this purpose with our improved Pyro Transparency Developer, they give any desired density with perfectly bare glass in the high lights.

Price, 3¼x3¼ (English Lantern Size), 75 cts. per doz.

Edwards's Special Pyro Transparency Developer.

For Lantern Slides and Transparencies.

By means of this new Developer the most perfect Transparencies can be obtained on suitable Dry Plates with the greatest facility. It is the only Developer yet discovered which will produce (on Rapid Gelatine Plates) Lantern Slides of the highest class with RICH WARM TONES and perfectly clear glass in the highest lights.

Price, Two 8-oz. Bottles in Case, $1.50.

B. J. EDWARDS & CO., Manufacturers.

For Sale by THE SCOVILL & ADAMS CO.

CHAS. COOPER & CO.,

194 WORTH STREET,

NEW YORK.

MANUFACTURING

CHEMISTS

AND

REFINERS

OF

PHOTO WASTE,

WORKS AT

NEWARK, N. J.

ESTABLISHED 1865.

JNO. G. HOOD, CHAIRMAN. WM. D. H. WILSON, TREASURER. JOS. P. CHEYNEY, SECRETARY

WILSON-HOOD-CHEYNEY COMP'Y,

(LIMITED.)

Photographic Supplies,

AND THE

ROSS LENS.

Full Assortment of White's Posing and Lighting Specialties.

∴ No. 910 Arch Street, ∴

PHILADELPHIA.

New York Headquarters for

SEED DRY PLATES

"STEAMER BRAND" PAPER.

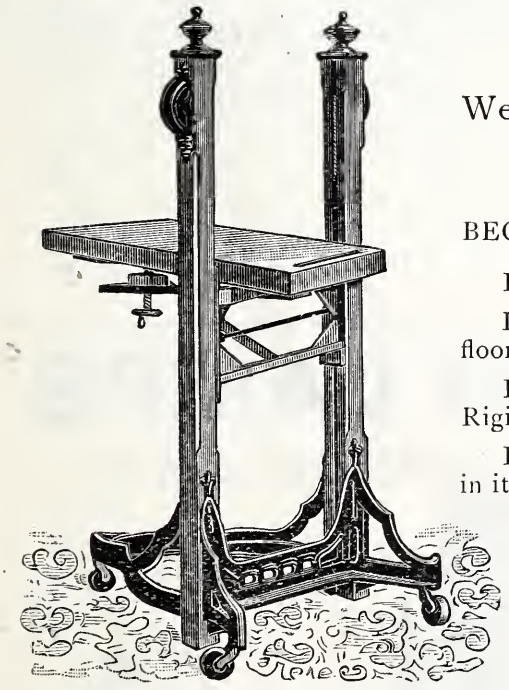
Hermagis, Berthist and Goerz Lenzes.
Green's Time and Inst. Shutters.
White's Posing Apparatus.
Globe Burnishers.
Simplex Camera Stands.
Cameras for Field, Gallery and Hand.
German Graduated and Scenic Grounds.

Eikonogen, Rodinal and Paramidophenol.
Spurrs, Bordeaux and Eagle Chemicals.

ARISTO PAPERS—All Brands.

GEORGE MURPHY, Manufacturer, Importer and Dealer,
57 East 9th Street, New York.

You want a New Camera Stand?



New England Agents for American Optical Co.'s Apparatus. Best in the world.
Send for Price List. : : : :

WHY NOT GET THE BEST?

We claim that **The Semi-Centennial Camera Stand**

BECAUSE— **IS THE BEST.**

It is simple in construction and will not get out of order.

It will enable you to get your Camera within 13 inches of the floor, or as high as you wish from the floor.

It is fitted with turning casters, with rubber wheels. Strong, Rigid, Easy in Operation, and Ornamental in Appearance.

It is the invention of a practical photographer and is perfected in its details. WARRANTED PERFECT.

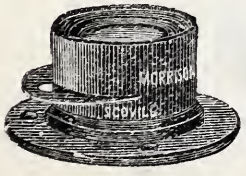
FOR SALE BY ALL DEALERS.

PRICE, Boxed, $25.00.

NEW ORTHO-PANACTINIC LENS.
H. R. & CO.'S ALBUMEN PAPER.

HORGAN, ROBEY & CO., Sole Agents,
34 Bromfield Street, BOSTON, MASS.

MORRISON WIDE-ANGLE VIEW LENSES.



These lenses are absolutely rectilinear; they embrace an angle of 100 degrees, and are the most rapid *wide-angle* lenses made.

No. of Lens.	Diameter	Size of Plate.	Equivalent Focus.	Price.	
0..1	inch...	3¼x4¼ inch...	2¼ inch...	each, $20.00	
2..1	"	...4 x 5 "	... 3¼ " ... "	25.00	
3..1	"	...4¼x 6½ "	... 4¼ " ... "	25.00	These 5 sizes will
4..1	"	...5 x 8 "	... 5¼ " ... "	25.00	fit into 1 flange.
5..1	"	...6½x 8½ "	.. 6½ " ... "	25.00	
6..1	"	...8 x10 "	... 8 " ... "	30.00	
7..1½	"	...11x14 "	...10⅛ " ... "	40.00	These 2 sizes will
8..1½	"	...14x17 "	...14 " ... "	50.00	fit into 1 flange.
9..1½	"	...17x20 "	...17 " ... "	60.00	These 3 sizes will
10..1½	"	...20x24 "	...22 " ... "	80.00	fit into 1 flange.
11..1½	"	...25x30 "	...28 " ... "	100.00	

☞ Nos. 1 to 6 are all made in matched pairs for stereoscopic work. The shorter-focused lenses are especially adapted for street and other views in confined situations. For general purposes, a pair of No. 5 lenses will be found most useful.

FOR SALE BY ALL DEALERS.

A. M. Collins
Manufacturing Company

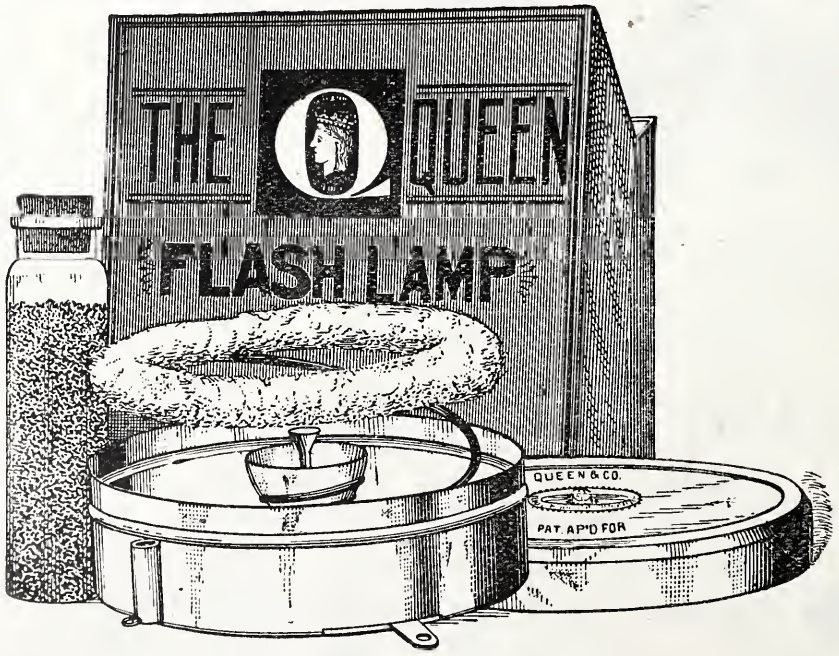
would call attention to Dealers in Photographic Supplies to their superior facilities for the manufacture and distribution of Photographic Cards, claiming that they have always in stock, or are prepared to make promptly to order, a greater variety and much larger quantity of Cards of superior quality than any other establishment in this or, perhaps, any other country.

Warehouse, No. 527 Arch Street,
Philadelphia.

QUEEN'S FLASH LAMPS

THE ONLY ENTIRELY SATISFACTORY FLASH LIGHT APPARATUS IN EXISTENCE.

Mailed to any address upon receipt of $1.50.



$1.50

STATISTICS:

Depth 1¼ inches
Diameter 4 "
Weight 4 ounces.

Charge (small) 20 Gr., (costs about 1½ cents.)
" (large) 30 Gr., " 2 "

Size of room effectively lit when good lenses are used, about 25 x 30 ft.
Size of room effectively lit when cheap lenses are used. about 16 x 20 ft.

Time consumed in getting the lamp ready for discharge, 1½ minutes.

Jas. W. Queen & Co., Phila.



Perfected BP Bradfisch

ARISTOTYPE PAPER.

A PERFECT SUBSTITUTE FOR ALBUMEN PAPER.

This paper prints with negatives of **ordinary** density, and gives **rich** and **brilliant** results, with clear and prominent whites.

It does **not** stick, nor does the surface of the print rub off.

THE PERFECTED BRADFISCH TONING AND FIXING SOLUTION is recommended for use with Aristotype Paper.

It works perfectly and is always clear.

For Sale by all dealers in photographic materials, and by THE SCOVILL & ADAMS CO.

THE 5 x 7 HENRY CLAY
Stereoscopic Camera
FOR TRIPOD AND HAND USE.



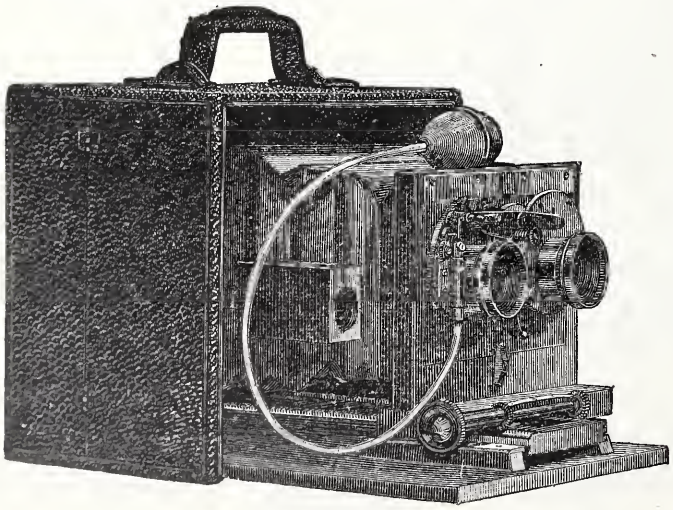
It is commonly known that of all pictures, those which are arranged to give the stereoscopic effect when viewed in a stereoscope, convey the true impression of perspective and solidity. It seems strange, indeed, that of the myriads of instantaneous pictures made, so few are taken with reference to their future use in connection with the stereoscope, *for it is only by that means that the idea of perspective and solidity can be conveyed.* We can only assign as the reason the present almost universal use of hand cameras, and that none of them have, up to this time, been arranged for stereoscopic pictures.

There is a much over-worked phrase—"the long felt want," but we think that just that, literally, will be met by the new hand camera which the American Optical Company have just finished.

The first illustration shows one of these cameras closed, and you will observe there is no external opening for finder, lens or anything to indicate that the leather-covered case contains the appliances which go to make up an instantaneous camera.

This camera measures eight inches high, nine inches long and five inches wide ; its weight is about five pounds. It has a screw plate underneath, so that it may be used with a tripod. It has a door in the back of the case, and through that opening the image thrown by the lenses may be seen on the ground-glass focusing screen.

The second illustration shows the appearance of the camera when open. The pair of Rapid Rectilinear Lenses is fitted with a triplex stereoscopic shutter with pneumatic release, made by the Prosch Manufacturing Company.



The camera is furnished with a focusing scale and a reversible finder. Either half of the stereo. negatives when cut in two are of a size suitable for making lantern slides from.

This camera may also be used to take a single picture of the size of the ground-glass focusing screen (5x7 inches), either vertical or horizontal. In the former case the reversible finder comes into use. The septum which divides the camera inside is arranged so that it may be easily taken out, the stereo. lenses are mounted on a removable front, and an extra front is furnished on which may be placed any lens of not over seven and a half inches equivalent focus.

PRICE, with a pair of Rapid Rectilinear Lenses and Prosch Stereoscopic Shutter with Pneumatic Release, ... $75.00

This camera can also be made with vertical sliding and swing front. By means of the former the proportion of sky and foreground may be adjusted ; the latter permits the taking of subjects which may be either above or below the level of the camera and still preserve the lines vertical.

PRICE, with a pair of Rapid Rectilinear Lenses and Prosch Stereoscopic Shutter with Pneumatic Release, and with vertical sliding and swing front, . $80.00

A 5x7 Roll Holder for Transparent Films can be furnished with either of the above forms of this camera for $15.00 additional. This addition would make the case about two inches wider and one-quarter inch higher.

THE SCOVILL & ADAMS CO., 423 Broome Street, New York.

"THE RATTLER."

$5 FRANK MCLAUGHLIN'S $5

New $5 Hand Camera

Is not a toy, as some may have supposed, on account of the remarkably low price at which it is sold, but a good, practical working instrument, one that we can recommend as being superior in every respect to any camera sold at double the price. It will make pictures 4 x 5 size, either snap-shot or on a tripod. More amusement and instruction can be had with one of these cameras this summer than will last you a life-time.

The Scovill & Adams Co.,

423 Broome St., NEW YORK.

Felt Backgrounds.

The Scovill & Adams' Plain Felt Background, recently introduced, is a great boon to all Photographers, both Professional and Amateur.

It is made of strong, thick and even stock, and is of an agreeable neutral drab color. It is especially suitable for vignetting. The texture of the cloth absorbs instead of reflecting light, and thus produces soft effects, and agreeable depth in print. The liability of defacement by water stains is obviated.

The prices of these grounds are as follows:

4 x 6 feet	$2.50
5 x 6 "	2.75
6 x 6 "	3.00
6 x 7 "	3.50
6 x 8 "	4.00

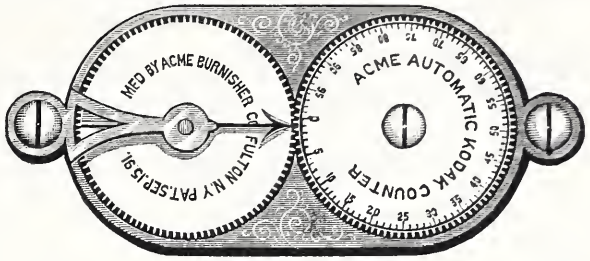
These sizes may be sent by mail on receipt of 35c. extra.

For Sale by all Dealers in Photographic Goods,
OR BY

The Scovill & Adams Co.

423 Broome Street, New York City.

ACME
AUTOMATIC KODAK COUNTER.



(Patented Sept. 15, 1891.)

SIMPLE. DURABLE.

ANY ONE CAN ATTACH THEM IN A MOMENT.
ONLY A MOMENT REQUIRED.
WORKS PERFECTLY
REGISTERS AUTOMATICALLY
ALL EXPOSURES MADE.
TELLS EXPOSURES REMAINING ON ROLL.
GUARANTEED IN EVERY PARTICULAR.

PRICE LIST:

No. 1—For Regular Kodaks.....$2 00
No. 2—For Junior Kodaks..... 2 00

ACME BURNISHER CO.,
FULTON, N. Y.

"The Developer of the Future."

S. P. C.
Para-Amidophenol Developer

IN ONE SOLUTION.

An eight (8) ounce bottle containing developer sufficient for developing 100 5 x 8 negatives.

PRICE, 50 CENTS.

For sale by all dealers in Photographic Materials
AND BY
THE SCOVILL & ADAMS CO.

The Rudell Camera,

An Entirely New Magazine Camera,

Carrying 12 4 x 5 Glass Plates.

Most Simple in Action. Never Misses.

Size, only 10¼ x 6 x 6¾ inches.

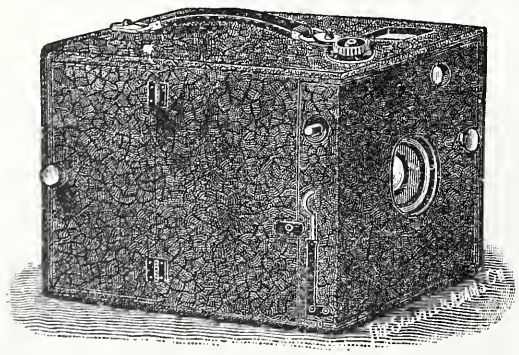
Fitted with a most ingenious Shutter, by which the plate is never exposed except during action.

AN EXCELLENT "DOUBLE COMBINATION" LENS.

Price, only $30.00.

FOR SALE BY ALL DEALERS IN PHOTOGRAPHIC MATERIALS.

THE TRIAD CAMERAS.



When a discovery in photography is announced, it is claimed that the new article will displace everything then in use. These claims are seldom justified. There is generally found a place for the new article, if it has any value, and for the old as well.

For commercial purposes, for instance, such as the reproduction of photographs for illustration, it has been demonstrated that collodion "wet" plates are better than dry plates. For the use of the amateur, on the other hand, dry plates are much better than wet plates. Though many new supports have been tried, the sale of glass dry plates is larger now than ever before. Where only a few pictures are to be made on one day's outing it is likely that the experienced photographer will always use dry plates or cut films.

If he is going away for a summer vacation, or for a trip abroad, and expecting to to make a large number of pictures, he will procure a roll-holder loaded with continuous films. This will save him the bother of developing while he is away from home, and of changing plates; but he cannot well know what results he has secured until he has exposed the entire roll and has had it developed

For those who want to use celluloid instead of glass plates, and are not willing to trust to good luck in the exposure of the complete roll of film, we offer with the "TRIAD" camera a *double* film holder which is very light. If the amateur carries six of these holders (loaded with twelve films) he is well supplied for one day · that is, if he is prudent and aims to get only really good pictures. At night, either in a photographic studio or in his own hotel room, the exposed films may be put away into safe receptacles, and another lot of unexposed films substituted for them.

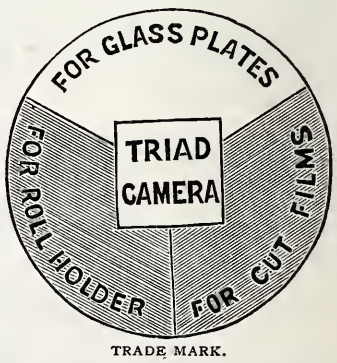
The TRIAD Camera is fitted with the latest improved Roll-Holder for continuous films, two double holders for glass plates, or two double film holders, if the latter are preferred.

This Camera is fitted with an Instantaneous Rapid Group Lens with easily interchangeable diaphragms —the most satisfactory detective camera lens ever made. It has a finder so constructed that the image is the same as that on the ground glass, though of course it is proportionately diminished in size. Usually the finder in a Detective Camera shows simply the image on the plate, but not its relative size and proportions. The Instantaneous Shutter in this camera is provided with a speed adjuster which works from the outside, and the focusing device and scale are conveniently near the finder. This is very important when one is trying to photograph rapidly moving objects.

For timed exposures use a tripod (easily adjusted to the camera by the plate underneath), open the door at the back, so that the image on the ground glass can be easily seen, set the shutter with the opening opposite the lens, and bring into use the felt cap which fits the opening in front of the camera. By complying with these simple requirements you have a complete camera for timed exposures.

	Price complete.	Price without Roll-Holder.
4 x 5 Triad Camera, with Roll-Holder, two Double Dry Plate Holders, or two Cut Film Holders	$35 00	$25 00
Extra 4 x 5 Triad Double Dry Plate Holders		1 25

Holders for Cut Films, same prices as above.



TRADE MARK.

For sale by all dealers in Photographic Materials and the Manufacturers,

THE SCOVILL & ADAMS CO.



Patented July 17, 1887.

STAMP PORTRAITS.

These are the only stamp portraits that are gummed and perforated, and being the exact size of ordinary U. S. postage stamps, photographers and others will find them an interesting novelty in advertising their business, as they can be mounted on business and visiting cards, letter-heads, etc.

We also make a size four times larger than the stamp pictures. Send for samples and prices, which will be furnished on application.

Address

H. A. HYATT,
Sole Agent,
N. E. Cor. 8th & Locust Sts.
St. Louis, Mo.

EXAMINE OUR NEW

BOOK CAMERA

BEFORE YOU PURCHASE ANY OTHER.

It is the most unique, elegant and attractive Camera ever produced. Suitable for ladies or gentlemen. Can be used as a hand camera or on a tripod.

SCOVILL & ADAMS CO.,
423 Broome St., New York.

CLEMONS' NEW MATT-SURFACE PAPER.

SOMETHING NEW UNDER THE SUN—A REVOLUTION IN THE ART OF MANUFACTURING.

After many years of scientific research a preparation for the salting of plain photographic paper has been discovered, by which method the finest printing results are obtainable. The advantages are apparent to all.

I.—Constant use will not discolor the silver bath.
II.—Will produce the finest detail in printing.
III.—Any desired tone may be obtained from sepia to jet-black with less gold than ever before.
IV.—The "*New Matt-Surface*" paper when sensitized will keep fresh for a long time if properly stored.
V.—The price has not been advanced.

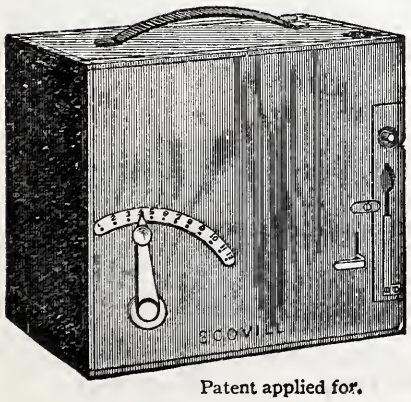
For sale by

THE SCOVILL & ADAMS COMPANY,
423 Broome St., New York.

Sample Sheets, by mail, 10 cents each.

The Advill Camera for Cut Films.

DIRECTIONS. { *SET THE SHUTTER.*
TOUCH THE RELEASE.
MOVE THE INDICATOR.



Patent applied for.

There are many amateur photographers who do not want to be encumbered with glass plates, nor do they want to use films in rolls, as in many roll-holders one hundred exposures must be made before any portion of the roll can be developed, and the finished pictures conveniently made. Our

ADVILL CAMERAS

—made for either twelve or eighteen cut films—are a happy medium between these extremes. Each film-carrier has a number corresponding to a similar number on the outside of the camera. After exposing one film move the indicator along from one number to the next number to get the exposed film out of the way and the unexposed film into place.

The camera is fitted with an Instantaneous Lens, which has an arrangement connected with it for changing the stops in the Lens without opening the camera. The shutter is arranged for both timed and instantaneous exposures. Attached to the leather-covered case there is a recessed finder.

Price for No. 1, for twelve 4 x 5 Films, reduced to..... .....$20 00
" 3, " 4 x 5 Glass Plates, reduced to..... 25 00

THE

Tintype Brigades

Are moving for their Harvest Fields, and THE SCOVILL & ADAMS CO. have laid in a superior line of material for their use, consisting of

FERRO PLATES,
CAMERAS,
CAMERA STANDS,
HEAD-RESTS,
FELT BACKGROUNDS,
AND THEIR WELL-KNOWN BRAND OF
PHENIX FERROTYPE OR
POSITIVE COLLODION AND VARNISH,
IN FULL-WEIGHT 8-OUNCE
PHENIX POURING BOTTLES.

ASK YOUR DEALER FOR

S. & A. GOODS.

F. WEBER & CO.'S

PHOTOGRAPHERS' LIQUID OPAQUE,

50 Cents per Bottle,



Is the best medium for blocking out backgrounds or skies, and to cover large and small imperfections in the negative.

F. WEBER & CO.'S

LIQUID INDIA INK,

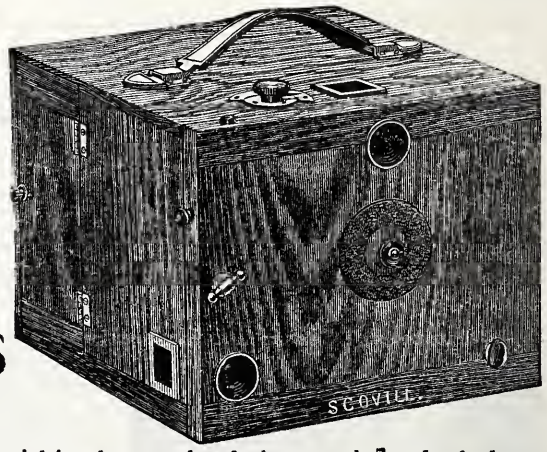
50 Cts. per Bottle.

For marking or numbering negatives, for drawing on matt surface print, and for all purposes where India ink is used.

THE SCOVILL & ADAMS CO.,
SOLE TRADE AGENTS.

IMPROVED KNACK KNACK

DETECTIVE CAMERAS



To MEET the demand for a cheap Detective Camera within the reach of the youth, and of those who want to make but a moderate investment in photographic appliances, we have introduced the KNACK CAMERA, which is certainly lighter and more compact than any other cheap detective camera in the market, and what is still more important, has a much more expensive and more perfect lens.

This Double Combination Instantaneous Lens, with Interchangeable Stops, when bought separately costs as much as the whole camera.

The whole front of this camera is hinged, which is a great convenience. The camera has a Recessed Finder, an Instantaneous and Time Shutter with Speed Regulator, Cap for timed exposures, and one Double Dry Plate Holder.

	PRICE.
No. 1 4x5 Antique Oak, Knack Camera, -	**$15.00**
No. 2, " Leather Covered, " "	**17.50**

MANUFACTURED BY THE SCOVILL & ADAMS CO.

FOR SALE BY PHOTOGRAPHIC MERCHANTS.

AMATEURS, ATTENTION!



Please remember that in speed and every desirable optical quality no lenses yet constructed can rival

Voigtländer's Euryscope Lenses,

which are made in SEVEN different styles.

BENJ. FRENCH & CO.,

319 Washington St. BOSTON, MASS.

Revised price-List sent on application.

Correspondence solicited.

GERMAN PHOTOGRAPHIC COLORS,

MANUFACTURED SOLELY BY **GUENTHER WAGNER,** HANOVER and VIENNA.

RETOUCHERS, ALBUMEN WHITES, GLOSSY COLORS.

The **RETOUCHERS** are for retouching the positive prints, and are in three different tints, to suit the different backgrounds of the photographs:

No. I. Brownish Tint. No. II. Reddish Tint. No. III. Bluish Tint.

These retouchers are intended to take the place of India Ink with its various admixtures of Carmine and other pigments. They are prepared for ready use and thus shorten very materially the operator's work; also in many other ways they are a very great improvement in the ordinary method of retouching.

The **ALBUMEN WHITES** are for spotting on Albumen paper, and are also prepared in three different tints. They will dry with a **GLOSS** on the Albumen papers, thus preventing the retouched plates from being seen after the spotting is done.

No. I. Pure White for high light. No. II. A Light Yellowish Tint. No. III. A Deeper Yellowish Tint.

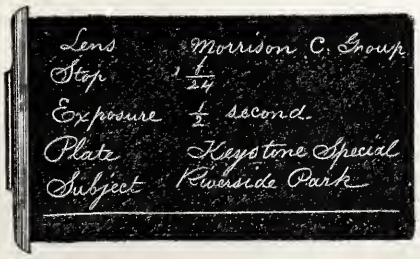
The **GLOSSY COLORS** are specially prepared for tinting photographs. The list comprises: Cobalt Blue, Cadmium Yellow, Rose Madder, Sepia, Scarlet Lake, Venetian Red and Yellow Ochre.

These Glossy Colors, as well as the Retouchers and Albumen Whites, can be used either before or after burnishing. They are all put up in cylinders, neatly wrapped in tinfoil. They will be found very economical in use, as by putting a drop or two of water on the palette and gently rubbing the ends of the cylinders in it, sufficient color will be produced for a number of pictures.

WAGNER'S ∴ PHOTOGRAPHIC ∴ COLORS.

Photo Retouchers, I., II., III.	$0 50 each.	Sepia	$0 30 each.
Albumen Whites, I., II., III.	50 "	Venetian Red	30 "
GLOSSY COLORS.		Yellow Ochre	30 "
Cobalt Blue	60 "	MAHOGANY BOXES CONTAINING	
Rose Madder	60 "	No. I., the three Retouchers and Whites	3 25 "
Cadmium Yellow	60 "	No. II., the three Retouchers, three Whites, and seven Glossy colors	7 00 "
Scarlet Lake	50 "		

For Sale by THE SCOVILL & ADAMS CO.





REGISTERING SLIDES.

(PATENTED.)

In the pleasure or excitement attendant upon picture-taking, holders slides have been so changed about that the note-book afforded no clue to their identity. All photographers, whether professional or amateur, who have in time past puzzled their brains in the endeavor to solve such vexatious questions as these—

"Have I or have I not exposed that plate?"
"If exposed, was the plate used for that prized picture?"
"Shall I incur the risk of making a double exposure?"

henceforth will have themselves only to find fault with if they do not procure and use in their dry-plate holders the patent registering slides, or as they have been called "Record Slides." These can be written upon with slate or lead pencil *ad libitum*, and the writing erased without injury to them.

Registering Slides *will be supplied with new American Optical Co.'s Dry Plate Cameras and Amateur Outfits up to* 10x12 *size without addition to price list.*

NEW PRINTING PAPERS.

KALLITYPE.—A new process recently discovered, yielding prints of a beautiful black tone with a mat surface

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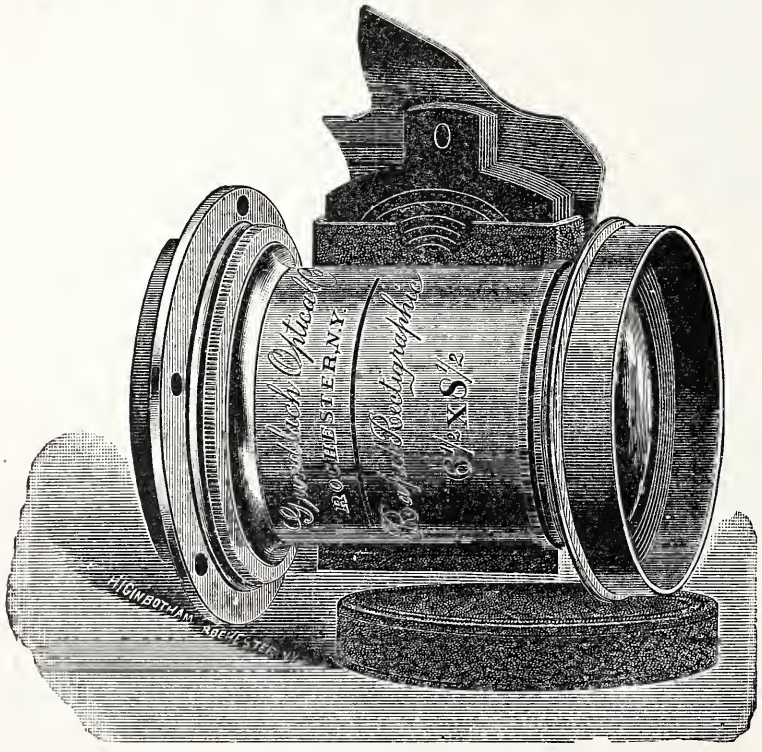
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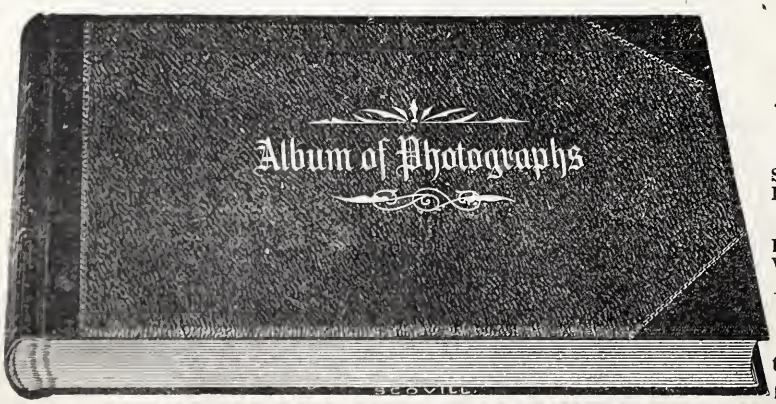
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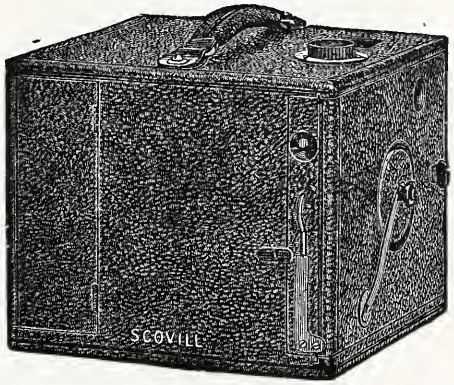
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